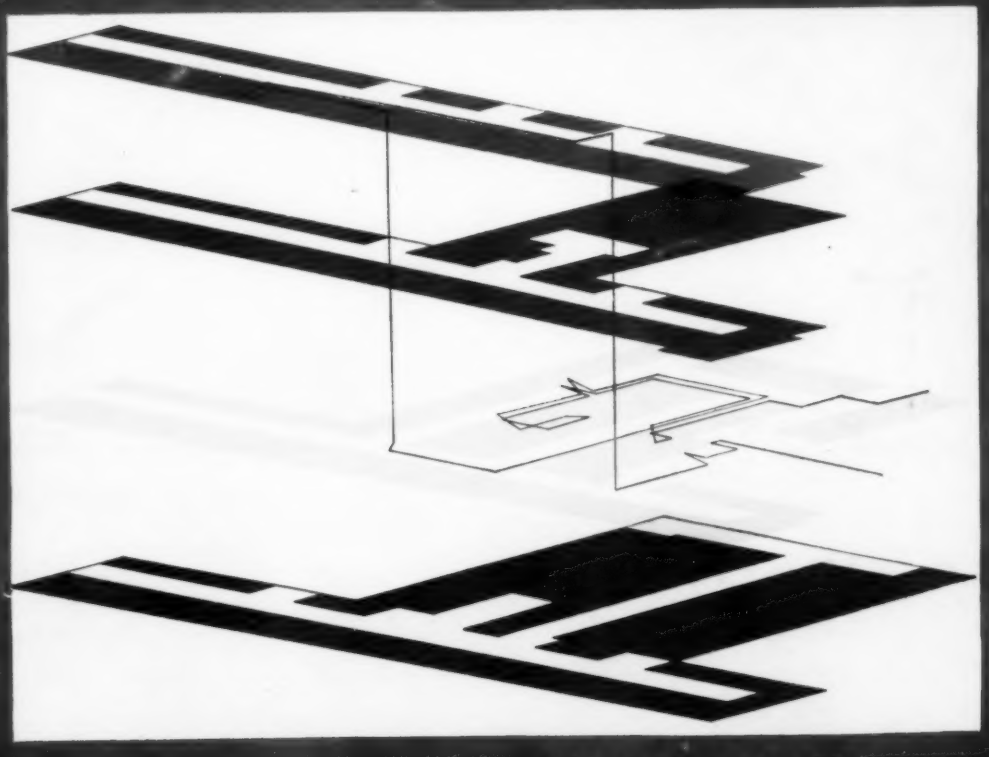
MUNICIPAL AIRPORT

ARCHITECTURAL RECORD

FEBRUARY 1953

BUILDING TYPES STUDY NUMBER 195
HOSPITALS



HOSPITAL PLANNING

FOR CLASSY SHOPS

. . . OR BUSY PLANTS

THERMOLIER UNIT HEATERS

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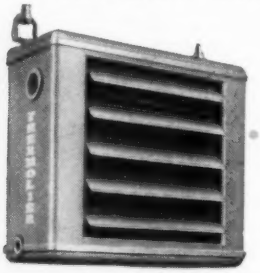
Grinnell Thermoliers are tested and they are rated in strict accordance with rules of the Industrial Unit Heaters Association.

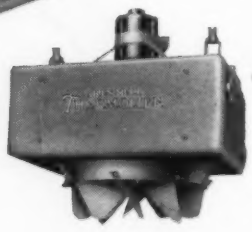
All Thermoliers can be operated at working steam pressures up to 125 psi and steam temp. up to 406° F.

A MODEL AND SIZE FOR EVERY PURPOSE

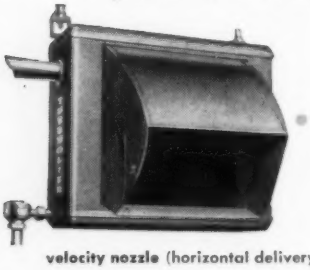


horizontal delivery

textile (horizontal delivery)



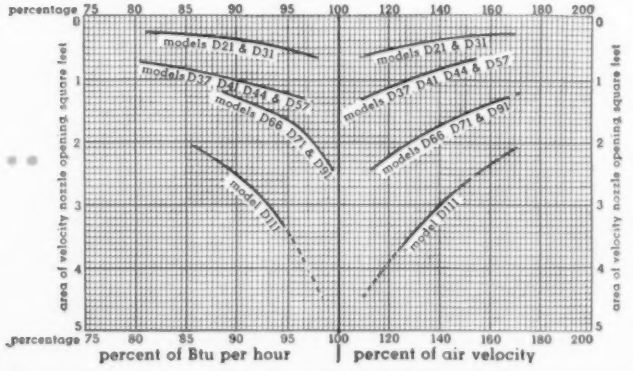
vertical delivery



velocity nozzle (horizontal delivery)

model	total heat delivered, Btu per hr	sq ft edr (nominal)	air velocity at exit, louvers open, lin. ft. per min.
horizontal delivery			
D21	35,600	148	786
D31	48,700	203	851
D37	62,200	259	753
D41	71,000	295	901
D44	84,100	350	887
D57	101,300	422	1016
D66	128,700	536	779
D71	151,700	632	977
D91	196,000	817	985
D111	275,300	1147	1048
Textile			
TX70	69,800	291	826
TX110	113,700	474	877
vertical delivery			
VA1042	50,800	212	1399
VA1045	73,600	307	1287
VA1065	109,400	456	1354
VA1075	145,600	607	1231
VA1101	185,000	770	1495
VA1111	257,000	1071	1631

performance with velocity nozzle ▶


percentage 75 80 85 90 95 100 120 140 160 180 200
models D21 & D31
models D37, D41, D44 & D57
models D66, D71 & D91
model D111
area of velocity nozzle opening, square feet
0 1 2 3 4 5
percent of Btu per hour
percent of air velocity

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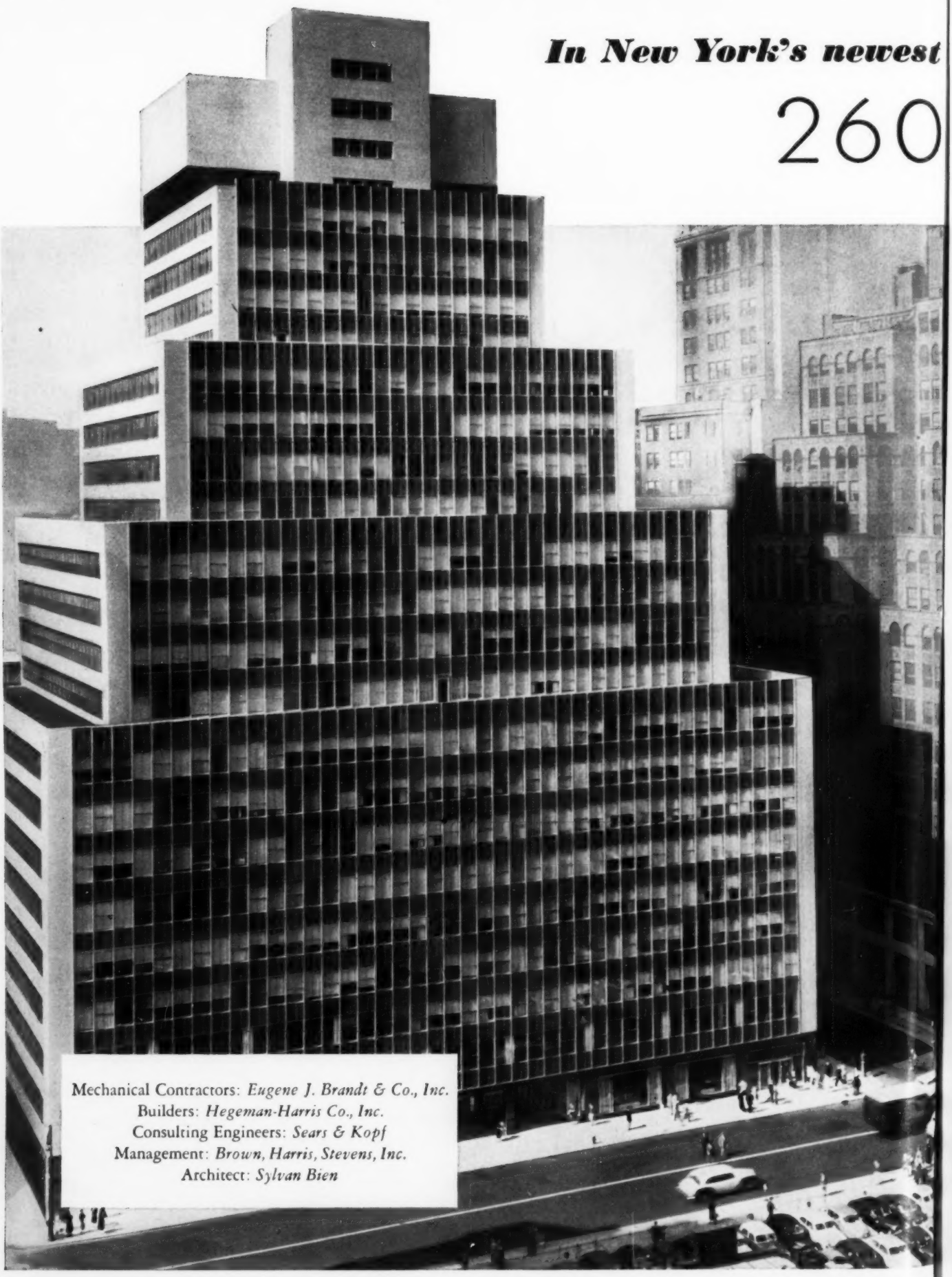
In New York's newest
260
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Builders: Hegeman-Harris Co., Inc.
Consulting Engineers: Sears & Kopf
Management: Brown, Harris, Stevens, Inc.
Architect: Sylvan Bien

PERSPECTIVES

DESIGNED FOR IKE: The big architect on Inauguration Day was Robert A. Weppner, Jr., who designed the Presidential reviewing stand from which President Eisenhower and his new official family and their guests reviewed the Inaugural parade. Mr. Weppner won a competition sponsored by the Washington Metropolitan Chapter of the American Institute of Architects. The 48 competitors were required to complete their preliminary sketches within an hour; only 32 made it.

MIES LLOYD GROPIUS DEPARTMENT: Instituto Tecnico de la Construccion y del Cemento of Madrid sent holiday greetings — somewhat delayed — to several American architects in care of the RECORD. The addressees included (*sic*): Mr. Holabrid Root, Ingeniero; Mr. Burge; Mr. Wuster Bernardi, Architect; Mr. Emmons, Architect; Mayer & Whittlesey-Skidmore; Owings & Merrill.

NEW COUNTRY — NEW ARCHITECTURE: The theme of the 1953 convention of the American Institute of Architects June 16–19 in Seattle appears to have influenced the choice of seminar topics. The northwest architecture slant is sure also to stimulate discussion about regionalism in American architecture; a subject, by the way, which gets some mention in Henry-Russell Hitchcock's introductory essay for *Built in USA: Postwar Architecture*, the new book from the Museum of Modern Art. Hitchcock says ". . . the ablest architects, like Wright from his earliest days, know how to be successful regionalists of all the regions they are called upon to work in . . . But in many ways, considering — as compared to European countries — the enormous distances between one region and another and their disparate climates and available building materials — it is the homogeneity of American production that is surprising." The convention seminars will include three on the future of wood as a building material; one on condensation in buildings; and one entitled "The Oriental Influence in Art and Architecture in the United States."

JOSE LUIS SERT, who will succeed Joseph Hudnut as dean of Harvard's Graduate School of Design next September, is a man who believes there are too many words in the world today; the image, he says, is an important and neglected medium of communication. Even the techniques which are too new to be neglected are badly used — television is like radio with a camera, Cinerama in its first feature devotes too much footage to subjects which do not realize its potentialities. In whatever field, Sert wants artists to *use* the new techniques to do new things and old.

LE CORBUSIER TRIUMPHANT: The Society for Protection of Esthetic Beauty in France has lost its suit and Corbu's *Radiant City* is safe even if, in the Society's view, the "esthetic aspect" of the waterfront of Marseilles has been destroyed. The newspapers, which do not always seem to architects to be alert to architectural news, were not caught napping on this item — even the *New York Daily News* had a story and *The New York Times* gave it an editorial, winding up with a comment that rather put architectural controversy in its place: "With all the dreadful things that are happening in the world today, there's something pleasant and relaxing about a good old-fashioned fight over the esthetics of the skyline of Marseilles."

GOVERNMENT MONEY FOR ART: The report by A.I.A. Past President Ralph Walker on the UNESCO Conference of Artists in Venice, to which he was a delegate last October, includes a suggestion that might be the basis for some architectural crusading in this country. The Danish delegation at the Conference proposed an effort to have included in every government building budget a definite percentage to be used in enriching the building through ornament, sculpture, painting and better designed furnishings. The idea has been tried in Copenhagen, where the annual civic budget also carries an item devoted wholly to art purposes and to furthering the development of the city as a cultural center, including even the adornment of private commercial buildings when they occupy a dominant position within the city. "This type of budget in every city," says Mr. Walker, "might well be considered as a goal — to be achieved by the combined action of the artists and architects who live in them."

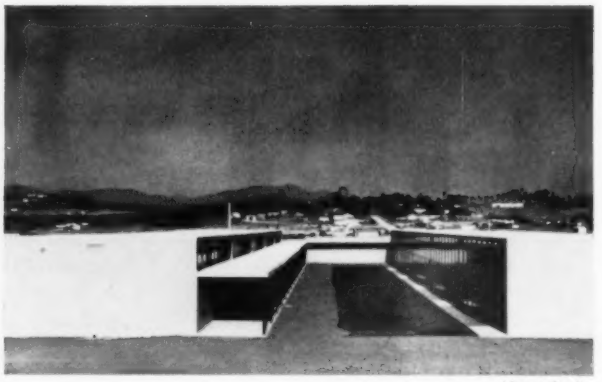
T. S. ELIOT AND UNESCO: The esthetics of the Paris skyline, with a side glance at New York's, was the concern of T. S. Eliot in a recent letter to the Editor of *The Times* of London. Expressing himself in no obscure phrases, Eliot wrote: "In your issue of November 1, your Architectural Correspondent refers to 'faults of planning and lighting that have made the United Nations secretariat the target for so much criticism.' The building is also open to the criticism that its shape is quite incongruous with those of the skyscrapers which have made the skyline of New York famous. It would be still more incongruous with the architecture of Paris; and if a similar honeycomb-on-end were to be erected on the edge of the Bois de Boulogne it should be as unwelcome to lovers of Paris, the world over, as the model is stated to have been to the Sites Committee of the prefecture of the Seine." Have Harrison, Breuer, Zehrfuss or Nervi any comments on *The Wasteland?*

"BUILT IN USA: POSTWAR ARCHITECTURE"

All photos: courtesy Museum of Modern Art

Pictor: Ezra Stoller

Alvar Aalto & Co.: senior dormitory, Massachusetts Institute of Technology, Cambridge, Mass., 1948, "perhaps the most strikingly mannered building of recent years"



Merge Studios

Maynard Lyndon: Vista Elementary School, Vista, Calif., 1950, "the school buildings of Maynard Lyndon recall phases of Italian architecture during the 1920's and 1930's"

Frank R. Whitney of the H. K. Ferguson Company: Bluebonnet Plant, Corpus Christi, Tex., 1949; "the buildings are concrete cages in which machines are freely arranged like books on a shelf"

Julius Shulman

Lloyd Wright: Wayfarers' Chapel, Palos Verdes, Calif., 1951; "one of the very few modern buildings for religious celebrations that can be distinguished from . . . a gymnasium"

NEW YORK'S MUSEUM OF MODERN ART last month opened the third in its series of major exhibitions of architecture. The first, in 1932, launched the Museum's Department of Architecture with the famous "International Exhibition of Modern Architecture," prepared by Philip Johnson and Henry-Russell Hitchcock; the second, in 1944, spanned the intervening years with "Built in USA: 1932–1944." Now 43 buildings have been selected by Henry-Russell Hitchcock from the nominations of a large advisory committee as the most significant examples of modern architecture built in this country since 1945; the criteria, in Mr. Hitchcock's own words, were "quality and significance of the moment."

Of the 32 architects represented in the show, 15 are "new" in the Museum's series; that is, they were not represented in either the 1932 or 1944 exhibitions. The examples of their work selected by Mr. Hitchcock are shown on these three pages.

Other statistics: the selection includes 18 houses, several school buildings, a hospital, a retail store, a chapel and a stadium. Eight firms are represented by more than one building; only Frank Lloyd Wright (four) and Ludwig Mies van der Rohe (three) with more than two.

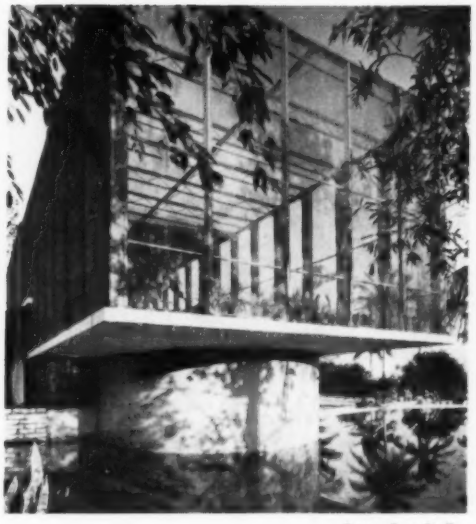
The selected buildings are presented both in the exhibition, which includes 10 models and photographic enlargements and three-dimensional color slides of every building, and in a new book of the same title. The 128-page book contains more than 100 plates; a preface by Philip Johnson, director of the Museum's Department of Architecture and Design; text by Arthur Drexler, its curator; and an introductory essay by Mr. Hitchcock.

(*Continued on page 12*)

Gabriel Benzur

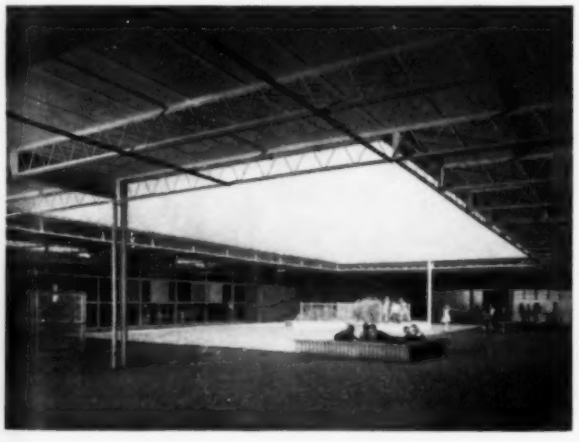
Dean Stone, Hugo Steccat

Above, left: R. L. Aeck & Associates: football stadium, Henry Grady High School, Atlanta, Ga., 1948; right: Eric Mendelsohn: Maimonides Health Center, San Francisco, 1950; "It is true that the balconies are rather like embroidery on an otherwise stolid architectural cloth. But they are an engaging diversion of obvious utility"



Pictor: Ezra Stolle

Above: Igor Polevitsky: Heller house, Miami, Fla., 1949; below: Charles Eames: Case Study House, Santa Monica, Calif., 1949, "unexpectedly draws out of industrial techniques a Japanese delicacy and decorativeness"



Donald Barthelme & Associates: West Columbia, Tex., Elementary School, 1952

Julius Shulman

Below: Soleri & Mills: desert house, Cave Creek, Ariz., 1951; "amusing glass and aluminum dome in the Arizona desert"

Julius Shulman

In addition to the 15 buildings shown on these pages, the exhibit and book include:

Gregory Ain — Wilfong house, Los Angeles, 1952; *Pietro Belluschi* — Equitable Building, Portland, Ore., 1948; *Marcel Breuer* — Cooperative Dormitory, Vassar College, Poughkeepsie, N. Y., 1951; *Gardner Daily & Associates* — Red Cross Building, San Francisco, 1948; *Walter Gropius* — Harvard Graduate Center, Cambridge, Mass., 1950.

Harwell H. Harris — Johnson house, Los Angeles, 1951; *Wallace K. Harrison* etc. — Alcoa Building, Pittsburgh, Pa., 1952, and United Nations Secretariat, New York City, 1950; *Philip Johnson*, own house (glass house), New Canaan, Conn., 1949, and Hodgson house, New Canaan, Conn., 1952; *Kennedy, Koch, Rapson, DeMars & Brown* — 100 Memorial Drive apartment house, Cambridge, Mass., 1950; *Ernest J. Kump* — San Jose High School, San Jose, Calif., 1952.

Ludwig Mies van der Rohe — Farnsworth house, Plano, Ill., 1950; 860 Lake Shore Drive apartment house, Chicago, Ill., 1951; Boiler Plant, Illinois Institute of Technology, Chicago, 1950.

Richard J. Neutra — Tremaine house, Montecito, Calif., 1949; *Saarinen, Saarinen & Associates* — General Motors Technical Center, Detroit, 1951; *Saarinen, Swanson & Saarinen* — Berkshire Music Center opera shed, Stockbridge, Mass., 1947; *Skidmore, Owings & Merrill* — Lever House, New York City, 1952, and Garden Apartments, Oak Ridge, Tenn., 1950.

Raphael Soriano — Case Study House for *Arts & Architecture*, Los Angeles, 1950; *Twitchell & Rudolph* — Siegrist house, Venice, Fla., 1949; *Frank Lloyd Wright* — Helio-laboratory for Johnson Wax Co., Racine, Wis., 1949, V. C. Morris store, San Francisco, 1949, Jacobs house, Madison, Wis., 1948, and Friedman house, Pleasantville, N. Y., 1949; *Yeon, John* — Visitors' Information Center, Portland, Ore., 1949.

BUILT IN USA: POSTWAR ARCHITECTURE

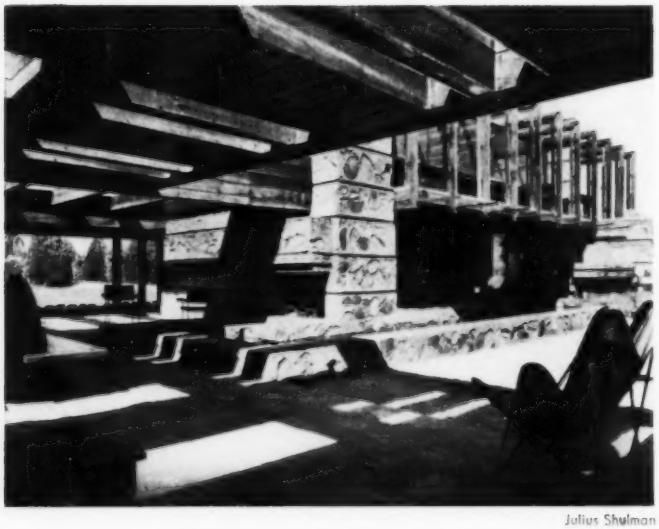
(*Continued from preceding page*)

Ulric Meisel — Dallas

Right: Edward Larrabee Barnes: house for Ted Weiner, Fort Worth, Tex., 1952

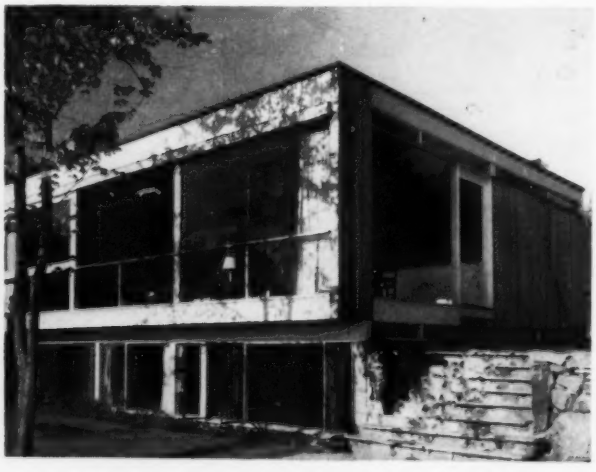
Ezra Stoller

Twitchell & Rudolph: house for W. R. Healy, Sarasota, Fla., 1950

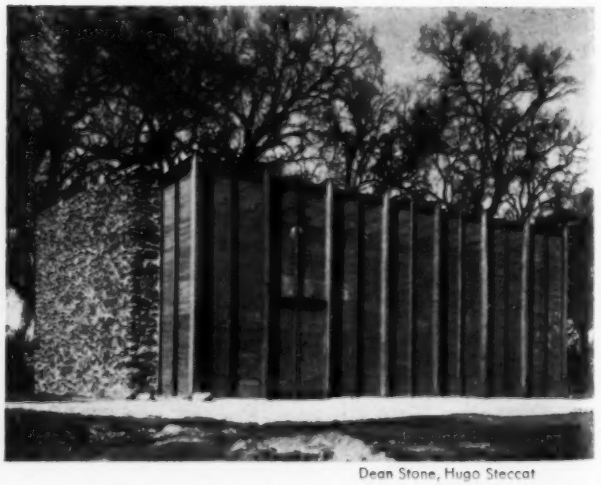


Julius Shulman

Schweikher & Elting: house for Louis C. Upton, Paradise Valley, Ariz., 1950



John Johansen: own house, New Canaan, Conn., 1949



Dean Stone, Hugo Steccat

Mario Corbett: house for Moritz Thomsen, Vina, Calif., 1952

A.I.A. MEMBERS ENTER PUBLIC RELATIONS ERA

THE $100,000 THREE-YEAR PUBLIC RELATIONS program approved by the 1952 convention of the American Institute of Architects was officially launched last month with the signing of a contract with Ketchum, Inc., Pittsburgh public relations firm, to run the program. Anson Campbell is the firm's account executive for the A.I.A.

The public relations counsel will work with A.I.A. chapters, in consultation with the A.I.A. Public Relations Committee headed by John Root, to lay the foundation for a program "to help architects become more articulate," according to the Institute's announcement.

Tools for chapter public relations committees to work with are first on the Ketchum agenda. The tools will be developed in four projects; 1) a "facts package" of background material on architects, architecture and the A.I.A. for the information of editors of newspapers and selected consumer magazines; 2) public relations workshops at regional level to explain public relations tools, techniques and opportunities to architects; 3) beginning in April, a periodic letter to all members of the A.I.A.; 4) a promotional "handbook" for architects, summarizing the most successful promotion ideas of architects.

"CONVENTION SECRETARY" ADDED TO A.I.A. STAFF

ARTHUR B. HOLMES, former executive director of the New Jersey Society and the New Jersey Chapter of the American Institute of Architects, has joined the Institute's headquarters staff as convention secretary.

Announcing the appointment, Executive Director Edmund R. Purves explained that the expanding scope of A.I.A. conventions has developed an urgent need for a full-time headquarters staff aide to help with organization of the meetings.

Mr. Holmes, who is also a former president of the New Jersey groups, met at the end of January with Washington State Chapter committees to discuss the developing plans for the 1953 convention June 15–19 in Seattle.

DESIGN COMPETITION FOR STORES OF THE FUTURE

A $10,000 NATIONAL COMPETITION for "The Best Architect-designed Retail Stores of the Future" will be held in connection with the Fourth National Store Modernization, Building and Maintenance Show June 9–12, in Madison Square Garden, New York.

John W. H. Evans, managing director of the Store Modernization Institute, sponsors of the exposition, has announced that the contest will comply with the code for secondary competitions of the American Institute of Architects. The professional advisor is Caleb Hornbostel, A.I.A., 80 West 40th Street, New York.

The program for the competition requires the shopping center design to include at least 16 types of stores — suburban branch department store; apparel specialty shop (women's); apparel specialty shop (men's); bakery; books and records; drug; independent food; hardware; jewelry; liquor or package goods; florist; furniture and appliance; gift; shoe; stationery and office equipment; supermarket; variety store.

Awards will include a first prize of $8000 and 10 honorable mentions of $200 each. A jury of nationally known architects will be announced later.

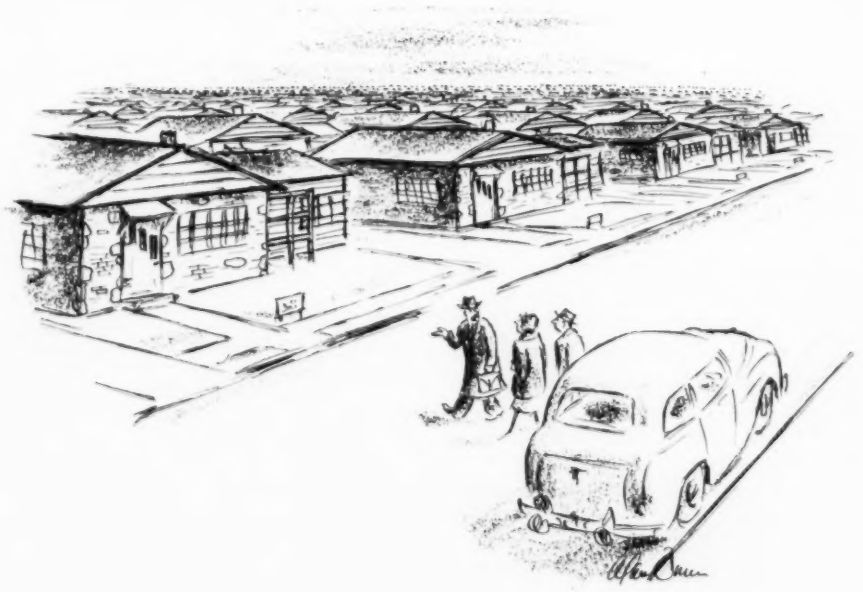
The competition will be co-sponsored by invited manufacturers from among the following fields: lighting, fluorescent and incandescent; air conditioning; floor coverings; wall coverings; store fronts and awnings; signs; vertical transportation; store fixturing and self-service equipment; structural materials; acoustical ceilings; washroom fixtures; electronic doors and others.

The competition is open to all registered architects. Information about the rules governing entries is available from Mr. Hornbostel.

LAUNCH NEW PROGRAM OF NEW YORK HONOR AWARDS

SCHOOL BUILDINGS are the subject of the first annual program of Honor Awards for current work sponsored by the New York Chapter of the American Institute of Architects. To be eligible, buildings must be for age groups below the college level; in or within 50 miles of New York City; completed since January 1948; and designed by a registered architect practicing anywhere in the U. S.

Closing date for registration, originally set for February 15, has been moved up to March 1. Entries must be received by March 16. Details from: Committee on Honor Awards, New York Chapter, A.I.A., 115 East 40th Street, New York 17, N. Y.



—Drawn for the RECORD by Alan Dunn

"Only six months ago this was a 'Blighted Area'—"

CIVIL DEFENSE CALLED FEASIBLE AND URGENT

Project East River Calls for Vast Program of Urban Planning and Structural Protection

A TEN-VOLUME REPORT on civil defense which could be the herald of a new era in urban construction — or so many pieces of paper — was submitted early last month to the Federal Civil Defense Administration, the National Security Resources Board and the Department of Defense. The decision is now up to President Eisenhower and the new Republican Administration.

Major conclusions of the report: defense against air attack is both possible and feasible; reduction of urban vulnerability by (1) space and (2) structural protection is the logical approach to such a defense; and the Federal Government has an urgent obligation to assume decisive leadership in the launching of the required programs.

The report came out of "Project East River," an 18-month study for the government agencies by more than 100 leading scientists, educators, businessmen and government officials under the aegis of Associated Universities, Inc., the association of nine eastern universities formed seven years ago to operate Brookhaven National Laboratory for the Atomic Energy Commission. A number of architects and engineers were among the participants, one of them, Stephen S. Voorhees of Voorhees, Walker, Foley & Smith of New York, on the eight-member steering committee.

Architects and engineers will be most concerned with Part IIB and Part V of the report — the sections which deal with reduction of urban vulnerability. Desirable standards are summarized as follows:

1. Urban areas should be grouped in Class I and Class II Vulnerable Urban Districts by NSRB or a Federal agency it designates.

2. No new defense-supporting industry should be located in any VUD or within 10 miles of Class I or six miles of Class II VUDs.

3. Housing, commercial and non-defense industrial densities should be reduced in Class I and all new construction in Class I should be blast- and fire-resistant.

5. Public and institutional buildings in any metropolitan area (as defined by the Census Bureau) which contains a VUD should be built to blast- and fire-resistant standards.

6. Federal, state and municipal spending, financing and construction activities in urban areas should be brought into line with minimum standards for urban development and redevelopment on a metropolitan area basis.

7. Urban land use and building controls should be exercised on a metropolitan basis and brought in line with minimum standards for urban development and redevelopment.

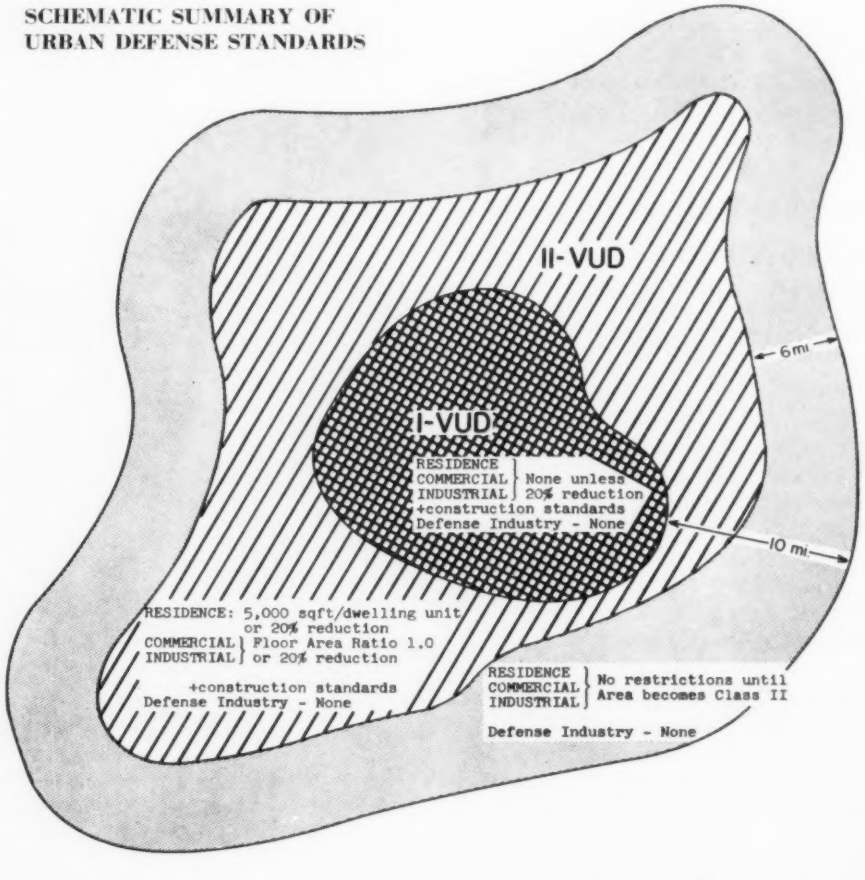
8. The FCDA survey for shelter in existing structures, modified where indicated by local conditions, should be completed as soon as possible in the VUDs, if necessary by Federal funds.

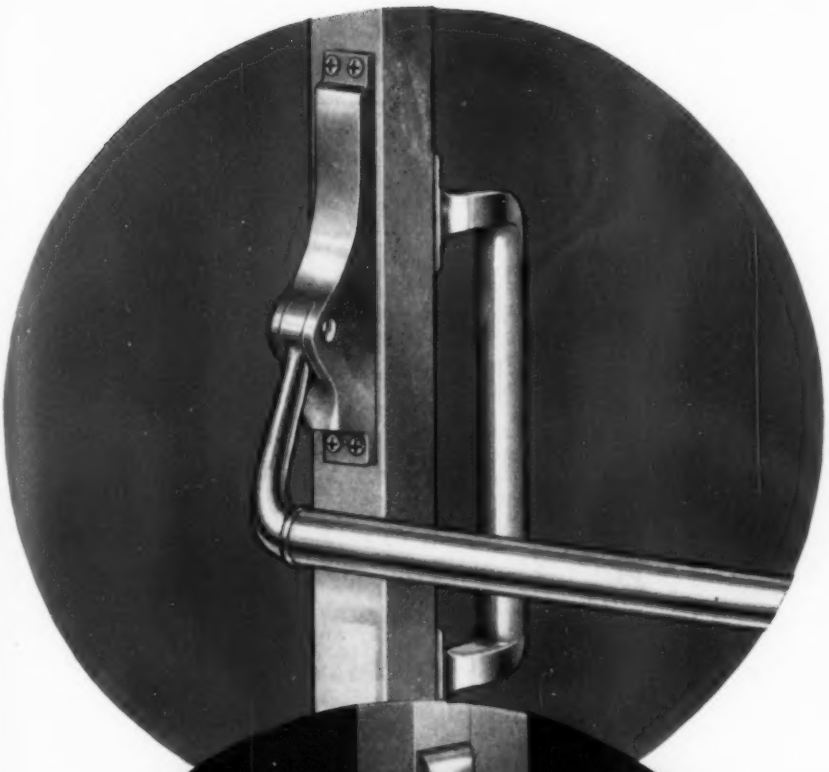
9. As the survey proceeds, the best available shelter space in existing structures should be designated (with minor alterations made where necessary) for VUD residents.

10. After completion of the survey, a study should be made of the cost and feasibility of a comprehensive shelter program to provide a reasonable level of protection.

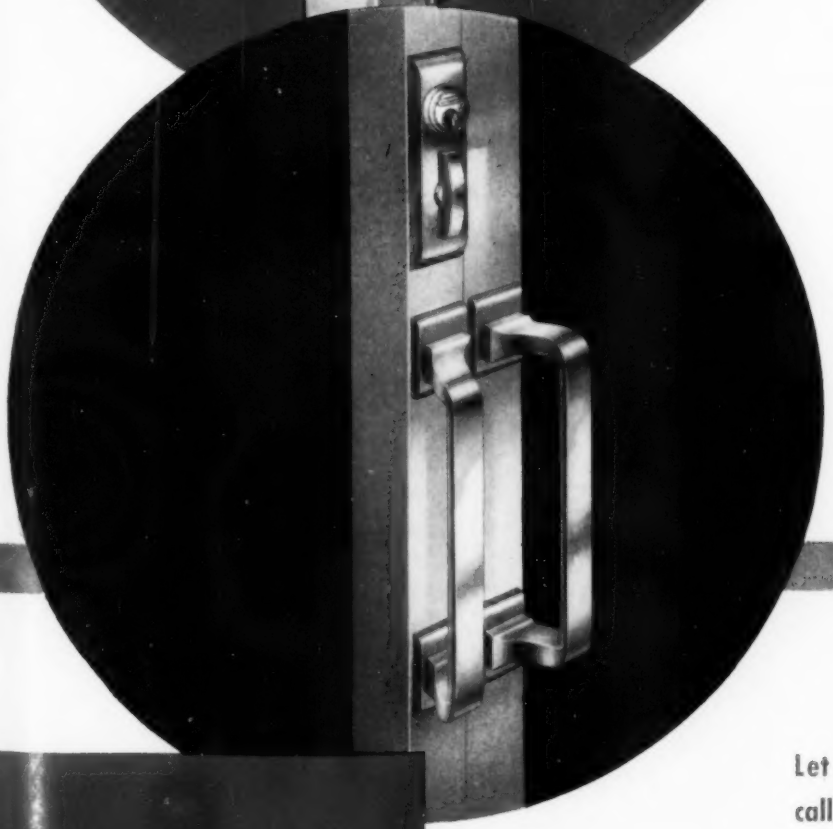
Parts IIB and V are not among the classified portions of the report, but no copies were available for distribution. The first printing was only 300 copies.

SCHEMATIC SUMMARY OF URBAN DEFENSE STANDARDS





INSIDE TRIM



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THE RECORD REPORTS

PERIODICAL REPORT

L'Architecture Française

Nos. 127–128

HOSPITAL and medical building planning and design is the subject of this entire issue of the French review, with examples drawn from France, the United States, Mexico and Australia. Buildings from these countries are shown in photos, plans and drawings (the American contributions are listed below in *Americans Abroad*). They include hospitals, clinics, doctors' offices and sanitariums, some of which are reproduced on this page.

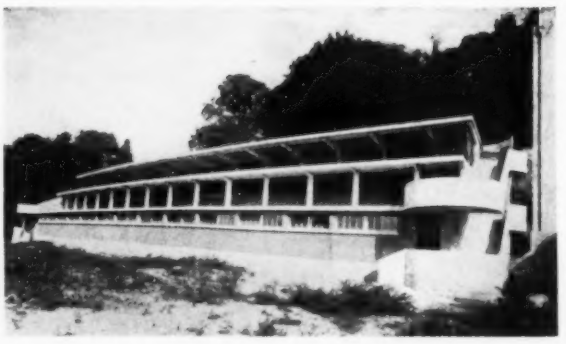
The issue also includes several articles on aspects of hospital planning. Among these are a piece on clinics by Dr. Paul Rambert, an article on medical offices by Louis G. Noviant, the magazine's editor, and an article on hydrotherapy installations by Paul G. Doyer. Several plans for medical offices and clinics are included. These are based on studies (familiar to RECORD readers) by the United States Department of Public Health's Office of Technical Services, Division of Hospital Facilities. They include offices for general practice, gynecology and obstetrics, pediatry, surgery, orthopedics, radiology, psychiatry, urology, dermatology, clinical pathology, ophthalmology and oto-rhinolaryngology.

(*Continued on page 340*)

NEW MEDICAL BUILDINGS IN OTHER COUNTRIES

FRANCE

Two examples of new medical buildings. Above, project for a surgical clinic, L. Noviant and J. DuMont, architects. Right, part of a large sanitarium, Marcel Favier and Adolph Thiers, architects



MEXICO

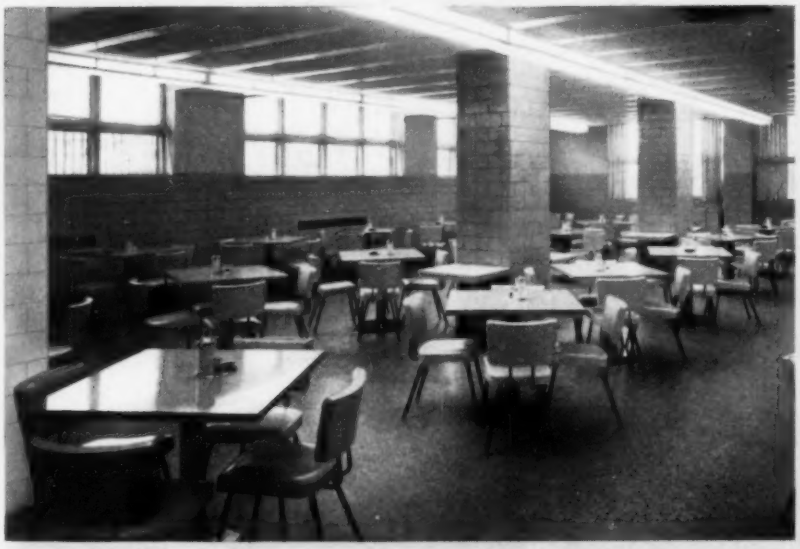
One of a group of government-sponsored clinics in Mexico City designed by G. Quintanar and A Serrato, architects

AUSTRALIA

Two new hospitals. Near right, Royal Melbourne Hospital, Stephenson and Turner, architects. Far right, Rachel Forster Hospital at Sidney, Leighton Irwin, architect

A wall-and-finish in one

glazed facing tile



BETH-EL HOSPITAL, NEW YORK, N. Y.
ISADORE ROSENFIELD, ARCHITECT
WILLIAM I. ROHAUSER, ASSOCIATE ARCHITECT

Stark's green mottle shade provides a combination of utility and beauty in the staff cafeteria (above).

Stark Glazed Facing Tile in clear glaze shade makes Beth-El's serving pantries bright, cheerful, easy to keep sparkling clean (right).

NEWS FROM CANADA *by John Caulfield Smith*

Architects Turn Critics: Another Look at the UN

IN THE FIRST of a new series of critical discussions of well-known recent buildings being held in conjunction with meetings of the Toronto Chapter of the Ontario Association of Architects, the United Nations Secretariat Building in New York was evaluated pro and con.

A panel consisting of Gordon S. Adamson (moderator), Basil Ludlow, F. H. Marani, Norman H. McMurrich, Robert R. Moffat and E. Sherrer, led the discussion, aided, abetted — and challenged — by speakers from the floor.

Not unexpectedly, the discussion evoked variant "traditionalist" and "modernist" points of view. F. H. Marani, for example, said that the Secretariat Building relies on "the sheen of glass and aluminum, like any box wrapped in cellophane"; and John Layng countered, "It is a mighty building, built in a mighty way, and we should be thankful that it has been built." John C. Parkin expressed the opinion that "form follows function" was an outmoded battle cry for contemporary design, and suggested as a more accurate substitute, "Form blends with function."

Swedish Architect Arrives To Study Canadian Building

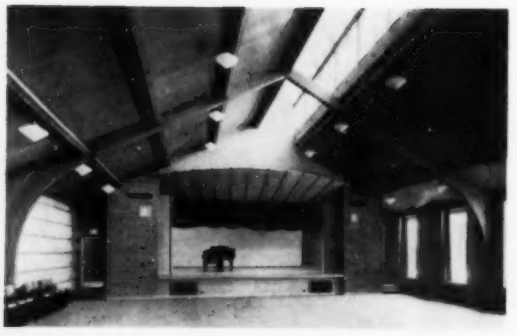
NILS V. LINDQUIST, an architect who is secretary of the Swedish State Committee for Building Research, has arrived in Ottawa for a year's study of building in Canada. He will be attached to the staff of the Division of Building Research, National Research Council, and will travel widely throughout the country in the course of his work.

Established in 1942 to conduct and promote technical and scientific research in building, the Swedish State Committee is representative of technical

(*Continued on page 26*)

NEW BUILDINGS

Above: municipal hall for township of East York, Ont. Architects for the structure are Shore & Moffat, Toronto, Ont.



Exterior, left, interior, above, of parish hall for St. Cuthbert's Anglican Church, Leaside, Ont.; Fleury & Arthur, archts.

WILLIAM J. WAGNER, ARCHITECT: (WETHERILL & HARRISON, DES MOINES, IOWA)

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CANADA

(*Continued from page 24*)

institutions, builders and trade unions. Its activities to date have been directed chiefly toward assisting research by making grants of money for the purpose.

Mr. Lindquist is the latest in a series of foreign experts who have visited the country on an exchange basis. From its inception in 1947, the Canadian Division of Building Research has maintained contact with building research organizations in many countries. Building scientists from Switzerland, the British Isles and Sweden have all worked in the country in recent years, with Canadians visiting and working in many European countries.

Above: new building for S. J. Willis Jr. High School, Victoria, B. C. Architect: C. D. Stockdill of Birley, Wade and Stockdill

The liaison has been valued for its encouragement of the free exchange of information. Mr. Lindquist's year is expected to be one more addition to the program being pursued by the Division of Building Research as it develops a research service for the Canadian construction industry.

Final 1952 Building Figures Not Expected to Set Record

The bright forecasts made last January for a record-breaking year for construction activity now seem to have no chance for fulfillment. Substantial decreases in industrial and engineering projects kept the value of November construction contract awards below the corresponding figure for 1951, even though residential and business construction awards were ahead for the month.

According to MacLean Building Reports Ltd., November's total awards of $152,975,000 were $4,893,100 below those for the same month a year ago. They brought the total for the first 11 months of this year to $1,714,175,400 for a decline of $480,871,700 from the $2,175,047,100 total of the first 11 months of 1951.

Only eight projects were listed in the big jobs for the month, the largest being a $6,000,000 hospital in Montreal, and $3,912,431 and $4,000,000 hangars in Comox, B. C., and Cold Lake, Alta.

(*Continued on page 30*)

"we discovered SEAL-O-SAN and are we pleased!"

SAYS Bill Moore

Basketball Coach
Shepherd College
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The Carrier Weathermaker Home Competition for the economical design of houses equipped with year-round air conditioning . . .

The Purpose: to provide designs which will encourage the planning and building of modern well-designed houses equipped with year-round air conditioning.

The Criteria: (1) good planning for house and site which takes advantage of year-round air conditioning; (2) skill in achieving economies in plan, design and equipment due to the use of year-round air conditioning; (3) suitability and adaptability for use in a home development; (4) esthetic considerations.

The Awards: National Grand Prize of $5000
6 Regional Grand Prizes of $2000 each
12 Regional First Prizes of $750 each
12 Regional Second Prizes of $150 each

The Contestants: must be registered, graduate or student architects or architectural draftsmen residing in the Continental United States, the Territory of Hawaii, Puerto Rico, or the Canal Zone.

The Jury: will be made of three Members of the A.I.A.; a housewife and a builder.

The Problem: Class 1—House of 1000 sq. ft. and under on 60 x 120 ft. lot
Class 2—House of 1000 sq. ft. to 1800 sq. ft. on 80 x 120 ft. lot

Awards will be made to both flat and pitched roof types in each class. Contestants must design their submissions for the region in which they live or work. For purposes of the Competition the United States will be divided into Three Regions: Northeast Region; Southern and California Region; Northwest and Central Region.

The Deadline: submissions must be received at the following address not later than 5 P.M., E.S.T., April 10, 1953.

Harold R. Sleeper, F.A.I.A., Professional Advisor
Carrier Weathermaker Home Competition
25 West 44th Street, New York 36, New York

The Entries: winning designs will be publicized and promoted nation-wide and Carrier Corporation will assist in the construction of the actual houses.

Contestants shall have the right to make contracts for their architectural services in connection with their winning designs, as it is the desire of the Sponsor that these houses be built.

The Sponsor reserves the right, on written notice to the contestant, to purchase and publicize other than the prize-winning designs. Contestants shall be paid $100 for each such design selected.

All other submissions will be returned to the contestants, insured for $100.

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SUPER-DIAMOND puts 40 diamond treads in every footstep—40 traction points to keep feet safe and secure. Every SUPER-DIAMOND grips hard for maximum skid-resistance, regardless of the angle of approach.

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First cost is low and so is maintenance—with A. W. SUPER-DIAMOND. The over-all SUPER-DIAMOND pattern permits cutting with minimum waste—provides perfect matching end-to-end or side-by-side. And SUPER-DIAMOND needs no maintenance other than cleaning.

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SUPER-DIAMOND installations are permanent. Years of abuse won't wear out this tough, rolled steel floor plate. It withstands hard blows and heavy loads without cracking or breaking. And it's resistant to oil, heat and fire.

LOOK *at the Easy Cleaning!*

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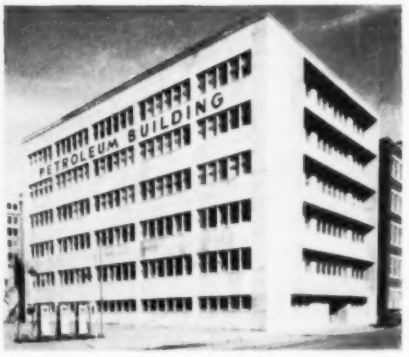
THE RECORD REPORTS

CANADA

(Continued from page 26)



Petroleum Building, Calgary, Alta., houses several major oil companies, including the owner, Pacific Petroleums, Ltd. Architects, Rule, Wynn & Rule

Review of Planning Laws Presented in New Book

"Outlines of Canadian Planning Law," a new book by Norah McMurray, has recently made its appearance. The book will serve as a complement to the basic work in the field, "Planning Legislation in Canada," by Harold Spence-Sales of McGill University. It furnishes a comparative and diagrammatic perspective of Canadian planning machinery dating back to prior to the 1914 World War.

The author has had wide experience in the field of town planning. Besides having worked with a firm of private town planning consultants, she was planning assistant to the Windsor, Ont., Planning Board and later she joined the Ontario Department of Planning and Development to engage in research.

Copies of Miss McMurray's book may be obtained for 50 cents from the Community Planning Association of Canada, 169 Somerset St. W., Ottawa.

Defense Housing Total Since 1949 Reaches 10,451 Units

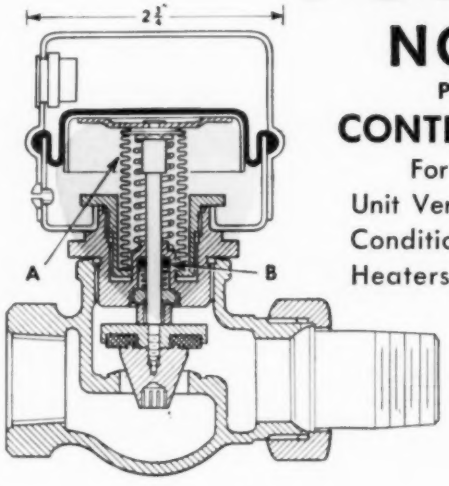
Contracts for 10,451 units of defense housing have been let by the Central Mortgage & Housing Corporation since 1949, according to an Ottawa announcement. Recent counts have shown over 9900 had been completed or were in process, with over 7191 finished and more than 2809 in various stages of construction. This year's target for total

(Continued on page 32)

New!

*Look what Powers has done to **Modernize** Control Valves*

Powers NO-PAK Valves Banish Packing Maintenance
Prevent leakage of water or steam or loss of vacuum



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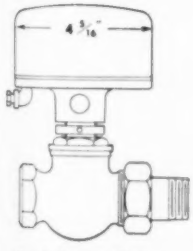
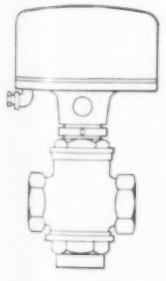


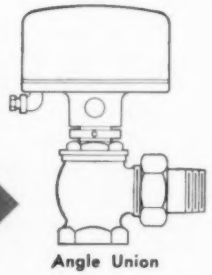
Straightway Union
3-Way Screwed Ends



Another POWERS Contribution to Better Heating and Air Conditioning Control

NO-PAK valves with their many advantages are now standard with Powers temperature control systems. Their superior performance is due to Duo-Seal construction.

Bronze Packless Bellows (A) in sectional view above, is the primary seal which eliminates packing maintenance — packing friction — steam and water leakage or loss of vacuum. It is designed to withstand pressure up to 150 psi. Maximum valve stroke is only two-thirds of the normal bellows stroke. A spring loaded secondary seal (B) permits servicing of valve top without draining the water system or shutting down the steam heating system. Seal is made of highly elastic neoprene and is ready to act at any time. Small contact between seal and the highly polished stainless steel stem makes friction a negligible factor.



Angle Union

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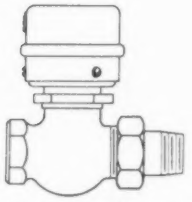
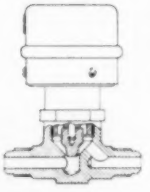
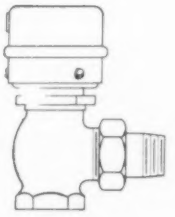


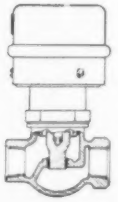
Straightway Union



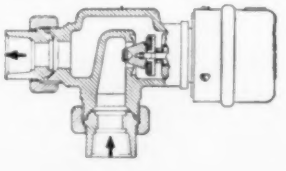
Flared Ends



Angle Union
← Screwed Ends



Below: Reverse Flow Double Union



(b2)

CANADA
(*Continued from page 30*)

starts, about 500 units, is close to attainment.

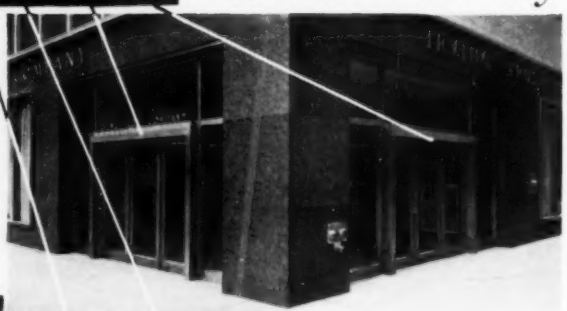
C.M.H.C. lets contracts and supervises construction for the Department of National Defense. These sometimes include schools.

Projects are being carried out in all provinces. Some of the larger of these are the Navy's 521-unit multiple dwelling project at Tuft's Cove near Halifax; another Navy project of 471 single units at Esquimalt's Belmount Park; a $2 million, 186-unit program of detached houses at Winnipeg for the Army and Navy; 500 individual houses for the Air Force at Rockcliffe, Ottawa; another 531 units for the same service at its big Trenton, Ont., base; and large Army projects at Barriefield, Ont. (490 units), Shilo, Man. (300 units), and Namao, Alta (350 units).

Ellison the BALANCED DOOR

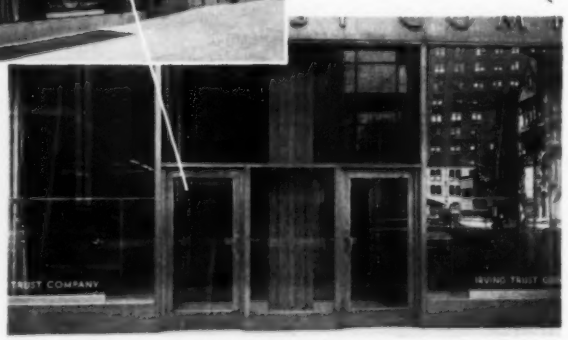
25 IN THE ENTRANCES TO IRVING TRUST COMPANY *in New York City*

Madison Ave. at 39th St.
architects Eggers & Higgins



Park Ave. at 42nd St.
architects Voorhees, Walker, Foley, Smith

Madison Ave. at 57th St.
architects Voorhees, Walker, Foley, Smith



The Door that lets TRAFFIC through QUICKLY

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representatives in 78 principal cities

Ellison the BALANCED DOOR

Subsidized Housing Draws Strong Housebuilder Protest

W. H. Grisenthwaite, president of the National House Builders Association, has voiced a strong attack on new large-scale housing projects proposed for opposite ends of the country, at Vancouver, B. C., and Saint John, N. B.

Mr. Grisenthwaite acknowledged the argument that subsidized rental housing is needed to provide for the impoverished aged, widows, orphans and othe unfortunate persons, but countered wit a charge that experience in the U. S. has demonstrated that these people still fail to benefit from such housing, since only those in the best circumstances among the low income group — those earning steady incomes — are admitted to subsidized rental projects. The "needy" and those on relief remain dependent on welfare and private charity, Mr. Grisenthwaite said. He also argued that over 11,000 over-income families now occupy subsidized U. S. projects and pointed out the difficulty in removing such families from projects once they are in them, even though their earnings may exceed the maximum allowed.

If rental housing is needed, it shoul not be provided at the expense of hom ownership, Mr. Grisenthwaite declared. Public money should not be required, he said, since the National Housing Act already provides for the operation of private enterprise in this field under the limited dividend section of the act, which provides for no subsidy, no tax concession and a very limited profit.

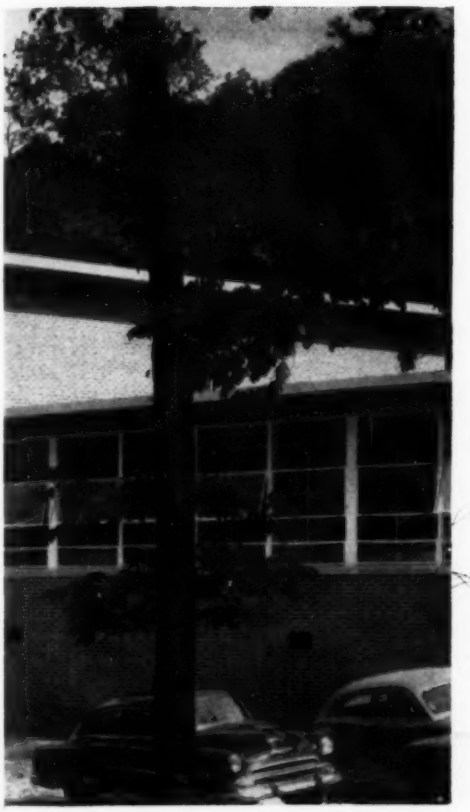
Soil Mechanics Discussed At Conference in Winnipeg

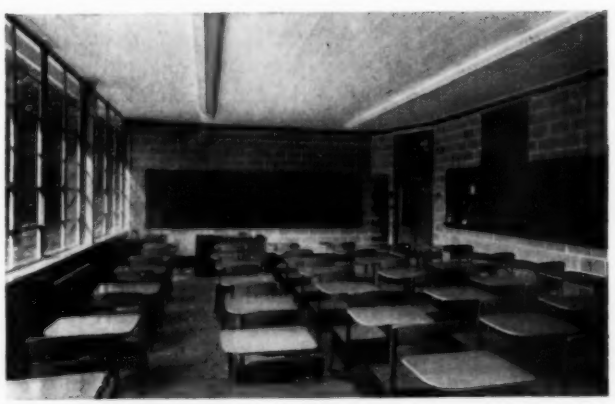
The sixth Canadian Soil Mechanics Conference, sponsored by the Associate Committee on Soil and Snow Mechanics of the National Research Council, was held in Winnipeg on December 15–16.

The meeting brought together soil scientists from across Canada and was part of the 75th anniversary celebration of the University of Manitoba.

The first day's program was devoted to the study of Manitoba soils and particularly those in the Winnipeg area. Papers were presented by Professors J. Ellis, O. Marantz and A. Baracos, all of the University of Manitoba.

Discussions of the second day were more general in character, including individual reports on soil problems in other parts of Canada and techniques for combating such problems.





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H. L. Eskew, heating contractor of Birmingham, says: "More and more in the South we're coming to realize the importance of proper temperature control and adequate heating methods. I think the Charles B. Glenn High School job is good evidence of that."

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NSRB REVIEWS 22-AGENCY STUDY OF PALEY REPORT

Board Asks More Investigation Before National Standards In Housing Are Adopted

IN A TWO-PART REPORT prepared at President Truman's request, the National Security Resources Board last month outlined the initial actions it advises for carrying out the formal recommendations on the nation's long-term materials and supply problems made earlier this year by the President's Materials Policy (Paley) Commission.

On one point which has provoked strong dissension in the construction industry, NSRB made a recommendation which will be received with relief in many quarters — more investigation before imposition of national building standards in the housing field. The Board thought a Federal agency should be designated to formulate standards.

Other recommendations: funds to enable the Department of Justice and the Federal Trade Commission to intensify investigation of trade restraints in the building and building materials industries — the idea being to eliminate restriction on the adoption of known materials-saving techniques; expansion of Federal research programs in the building field; amendment of present legislation to encourage greater participation by private enterprise in the use of atomic energy as a source of power.

22 Agencies Consulted

The Board's report not only presents its review of the formal recommendations of the so-called Paley Report but also reflects the views of 22 other Federal agencies whose appraisals of those recommendations were submitted to the President through NSRB.

The report is in two parts. Part I outlines some of the important objectives in regard to the management of our national resources that could be sought through the development of national materials policies and programs. Part II lists the Paley Commission's 78 formal recommendations with the opinions of each of the Federal agencies commenting and the NSRB view on each.

HHFA on Standards

In his comment on the Paley proposal to use the FHA mortgage insurance and the slum clearance programs as devices to enforce application of national building standards, Administrator Raymond Foley pointed out that these programs are only indirectly concerned with construction; enforcement of such provisions by indirection would be, he felt, impossible in the face of "local traditions, customs, prejudices and pressures." In sum: "Desirable as a speedup in the adoption of more reasonable codes may be, the proposed penalty appears too drastic in comparison with any benefits to be gained either nationally or locally."

The NSRB report, entitled "The Objectives of United States Materials Resources Policy and Suggested Initial Steps in their Accomplishment," can be purchased for fifty cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

(*Continued on page 38*)

FREE BOOK ON LAMINATED STRUCTURAL MEMBERS

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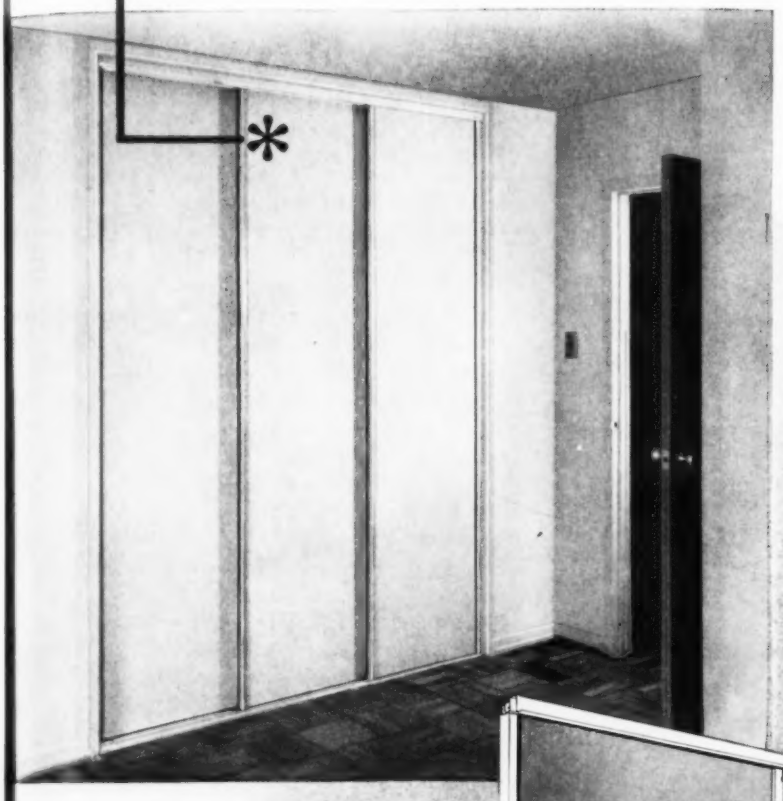

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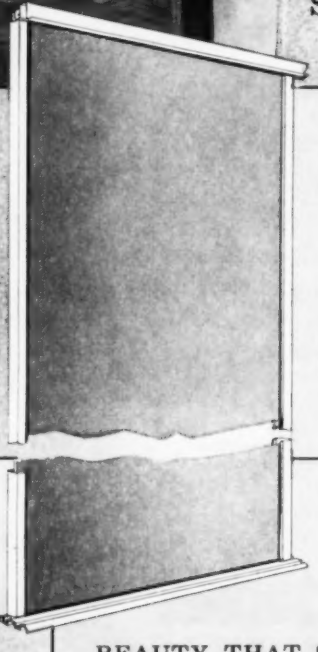

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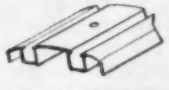

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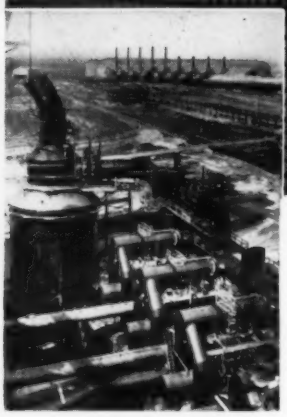

Fairless Works of United States Steel Corporation's plant at Morrisville, Pa., on the Delaware River, is the country's largest single steel construction project undertaken at one time. Waterproofing done by Lewis and McDowell, Inc., New York City.

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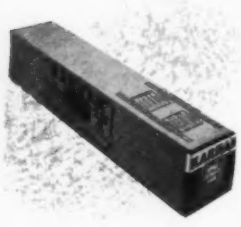

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THE RECORD REPORTS

WASHINGTON

(Continued from page 36)

THE JOB AHEAD: FOWLER MAKES HIS FINAL REPORT

"Open-Ending" CMP Early in 1953 Seen Possible; Must Government Build Plants?

What's still to be done was much in the mind of outgoing Director Henry Fowler of the Office of Defense Mobilization as he wrote the Eighth Quarterly Report of ODM. "Defense mobilization is in mid-passage," he wrote, and his report was entitled "The Job Ahead for Defense Mobilization."

What *is* ahead in Mr. Fowler's view: government construction of "standby" defense production facilities; more emphasis on reducing the nation's vulnerability to attack both by dispersion of new facilities and by applying protective building techniques to both new and old buildings; advance planning for engineering construction and equipment needs for rehabilitation of damaged facilities after attack.

Mr. Fowler thought it might be possible to "open end" the Controlled Materials Plan by the end of the first half of 1953. Allotments of most shapes and forms of controlled materials would then be restricted to the direct military, stockpile and atomic energy programs. This would permit the sale of controlled materials without CMP tickets to the extent that holders of tickets do not place orders equal to the entire supply.

Mr. Fowler noted that of $129 billion in procurement and construction already authorized for defense, some 37 per cent or an estimated $48 billion has been delivered. Much of the remaining 63 per cent, or an estimated $81 billion, is on order but is still in various stages of production.

WANTED: COLLABORATION FOR BUILDING AGENCIES

In Second Year of Study for DPA, BRAB also works on "Lowest Annual Cost"

Finding some "mechanism" for effecting a working collaboration among all Federal agencies dealing with construction is the major effort of the Build-

(Continued on page 278)

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FOR THE VETERANS MEMORIAL BUILDING, Detroit, Michigan, Pittsburgh products were selected as a part of the basic design scheme. Included in these products are 6,589 square feet of Polished Plate Glass, 326 square feet of Mirrors, twenty-four Herculite Doors, Pittco De Luxe Metal. Illustrated here is the commodious and comfortable lounge, with its large expanse of Plate Glass giving a commanding view of the outside surroundings. Architects: Harley, Ellington and Day, Inc., Detroit, Michigan.

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CONSTRUCTION COST INDEXES

Labor and Materials

United States average 1926–1929 = 100

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1925	121.5	122.8	111.4	113.3	110.3
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1940	126.3	125.1	132.2	135.1	131.4
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.4	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	265.2	262.2
Sept. 1952	279.7	276.6	274.4	276.5	274.3
Oct. 1952	279.0	275.7	274.3	276.4	274.1
Nov. 1952	277.9	274.3	274.1	276.3	273.8
	% increase over 1939				
Nov. 1952	**125.0**	**124.1**	**109.7**	**107.1**	**110.5**

ATLANTA

Period	Residential Brick	Residential Frame	Apts., Hotels Office Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Concr.	Commercial and Factory Bldgs. Brick and Steel
1925	86.4	85.0	88.6	92.5	83.4
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1940	91.0	89.0	96.9	98.5	97.5
1946	148.1	149.2	136.8	136.4	135.1
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
Sept. 1952	219.1	220.7	214.2	211.9	216.8
Oct. 1952	221.1	223.7	216.2	212.7	218.0
Nov. 1952	220.4	222.8	216.1	212.6	217.8
	% increase over 1939				
Nov. 1952	**155.4**	**168.1**	**127.2**	**118.3**	**130.0**

ST. LOUIS

1925	118.6	118.4	116.3	118.1	114.4
1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1940	112.6	110.1	119.3	120.3	119.4
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
Sept. 1952	260.9	254.1	253.5	259.7	254.0
Oct. 1952	260.2	253.2	253.4	259.6	253.8
Nov. 1952	259.5	252.3	253.7	259.5	253.6
	% increase over 1939				
Nov. 1952	**135.5**	**135.8**	**115.0**	**116.6**	**113.1**

SAN FRANCISCO

1925	91.0	86.5	99.5	102.1	98.0
1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1940	106.4	101.2	116.3	120.1	115.5
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
Sept. 1952	252.6	247.8	248.5	251.6	253.2
Oct. 1952	251.3	246.2	248.3	251.4	252.8
Nov. 1952	249.9	244.4	248.0	251.2	252.4
	% increase over 1939				
Nov. 1952	**136.6**	**146.1**	**111.2**	**106.1**	**116.7**

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear regularly on this page.

Architects and Engineers: Magney, Tusler & Setter
University Advisory Architects: Ray Jones and Winston Close

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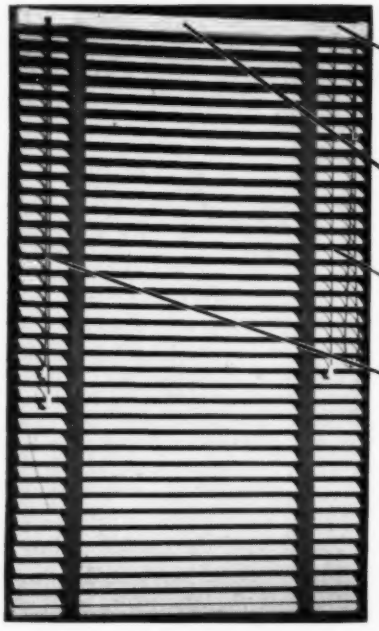

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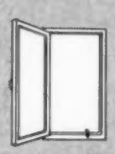

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AIR CONDITIONING THE MODERN SHOPPING CENTER

by Geoffrey Baker and Bruno Funaro, A. I. A.

GEOFFREY BAKER and **BRUNO FUNARO** are authors of the well-known reference book, *Shopping Centers—Design and Operation.* They are members of Howard T. Fisher & Associates, architects and engineers of New York and Chicago. This firm is actively engaged in the design of shopping centers.

SHOPPING SHIFTS TO SUBURBS

Today the interest of store developers has shifted from the individual downtown store to the suburban shopping center. In these new centers, a balanced grouping of stores under single ownership, it is possible to offer conveniences (especially, of course, ample parking) which only the very largest of the stores in the group could otherwise afford. As the focus of competition changes from rivalry between individual stores to a rivalry between shopping centers, shoppers who are already accustomed to look for the sign "This store is completely air conditioned" will now go searching in their automobiles for the new group of stores which, in addition to ample parking space, can also proclaim, "This center is completely air conditioned for your comfort."

With the whole group of stores under single ownership the shopping center designer can often lighten the air conditioning load by careful orientation and landscaping. As the new type of shopping center is not dependent for success upon extensive highway coverage, the stores are usually set back from the road; and they can often be oriented and placed in a pattern quite independent of the road frontage line, without damage to their primary function of efficient selling.

INDIVIDUAL UNITS OR CENTRAL PLANT

In broad terms, there are two alternative methods of air conditioning the new type of shopping center: 1) the use of individual units for each store, or 2) serving all the stores from a single central plant.

The system of individual units is one to which the tenants are already accustomed by experience in downtown stores. Such units are available in 3, 5, 7½ and 10-ton capacity. All are small enough to be easily moved through a 36"-wide doorway. The architect should provide suitable space and service connections at the time the building is planned, so that his nicely calculated façades and roof lines will not be later marred by unplanned towers, stacks and grills.

The tonnage per square foot required by the small store cannot be satisfactorily determined by any rule-of-thumb method. The number of units required in any given store will depend upon economics, the area to be conditioned, special conditions of smoke or odors, type of merchandise, importance of comfort cooling for customers and employees.

CENTRAL PLANT MOST EFFICIENT

Equipment and installation costs do not remain in direct proportion to tonnage. For example, two 3-ton units, costing approximately $3,000, although they may give slightly better air distribution than a single 5-ton unit, will cost almost twice as much, because the electrical, water and drainage connections must be doubled. Ducts are not usually fitted to any package unit smaller than 10-ton, for their cost is out of proportion to that of the unit.

Uniform equipment throughout the center will mean economy in purchase, maintenance and repair. However, this would practically force the landlord into assuming all the costs of air conditioning. The landlord in turn would have to transform this added cost into a rent increase, which might add to his difficulties when looking for tenants. It would also increase his capital costs; and the small promoter already finds this discouragingly high.

Theoretically, at least, if the landlord is to pay for the installation of air conditioning, it should be cheaper and more satisfactory for him to provide heating and cooling from a central plant, rather than by a series of individual store units. Technically, such a plant should be more

efficient, provided that the center is large enough, and planned compactly enough to avoid long and expensive lines of distribution between the power plant and the individual stores. For short runs, the conditioned air may be circulated in ducts; for longer runs it may be more efficient to circulate chilled water between the central power house and air-handling units in the stores. Technical difficulties of metering have already been overcome.

It is probably significant that the existing and proposed shopping centers with central air conditioning plants are all sponsored by large investors with ample capital. Moreover, each of these centers contains one or more large department stores; and it is such large users who can benefit most from a central plant.

A 1200-TON INSTALLATION

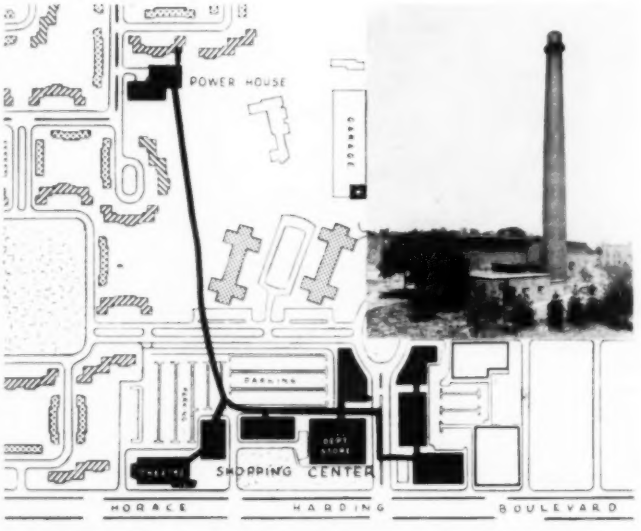

Diagram shows layout of modern shopping center at Fresh Meadows, Long Island, N. Y. Note location of power house (inset) and chilled-water lines from central plant to group of buildings in foreground.

The main shopping center at Fresh Meadows, the 3000-family community owned and managed by the New York Life Insurance Co. in Queens, N. Y., is among the first of the big centers to be served from a central air conditioning plant (of 1200-ton capacity). Chilled water circulated from this plant is metered and was made available to all commercial tenants who desired air conditioning. Almost all of the tenants took advantage of this offer and installed suitable air-handling equipment. As the central plant was put in as an extension to the main boiler house (which serves the residential buildings as well as the stores), operators were available to handle the chilled-water equipment.

Local regulations designed to conserve water made the central plant far more efficient and economical than a smaller number of units, each with its own diffusion well. Water for condensing purposes at the central plant is supplied from two wells, each of 500 gallons-per-minute capacity, and then returned to the ground by two diffusion wells.

NOVEL METER SYSTEM DETERMINES CHARGE

One of the problems was how to determine the charge to the tenant for the chilled water used. For the smaller tenants, the usage was estimated, and a charge based on an agreed rate for chilled water was included in the rent. For the department store and the theatre, for which the usage was large in amount and impossible to estimate closely, a unique metering system was evolved. The meters provided measure continuously the water flow in gallons and the temperature rise in degrees F., and integrate and record this in terms of BTU's. The charge to the tenant is based upon an agreed rate per million BTU of refrigeration as indicated by the meter. This is believed to be the first application of its kind.

FUTURE OF SHOPPING CENTER REFRIGERATION AND DESIGN

Ultimate development of the shopping center plan would seem, logically, to be a completely air conditioned enclosure of great size within which the individual stores would be set like different departments in a vast department store. This would transfer into terms of structure and mechanical engineering the merchandising advantages which have already been realized in the new shopping centers.

★ ★ ★

The shopping center of the future will almost certainly be air conditioned, either by central-plant or individual-unit system.

As Messrs. Baker and Funaro have explained, many shoppers today will actually go out of their way to trade in stores that provide for their comfort. The air conditioned place of business consequently has a decided advantage over the non-air conditioned store. It has already been proved many times that air conditioning is an excellent sales stimulator and merchants generally look upon it as a paying investment.

In considering various makes of machines now available, architects and consulting engineers heartily approve units charged with "Freon" refrigerants. These machines are compact . . . provide efficient, economical refrigeration . . . meet every air conditioning need of modern shopping centers.

"Freon" refrigerants are safe . . . nonflammable, nonexplosive, virtually nontoxic . . . fully comply with building-code requirements everywhere. Their chemical purity and uniformity insure trouble-free performance of the equipment over a long period of time. You can always recommend "Freon"-operated machines with confidence. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Del.

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"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon refrigerants

REQUIRED READING

"The feeling about space which typifies our period. . . ." : above — West Coast house by Eero Saarinen and Charles Eames; top right — house in Phoenix, Ariz., by Wright, bottom right — New York town house by Phillip Johnson. (Illustrations from "Living Spaces")

A SURVEY OF TODAY'S LIVING SPACES

Living Spaces. Interiors Library No. 1. Edited by George Nelson. Whitney Publications, Inc. (18 East 50th St., New York 22, N. Y.) 1952. 9 by 12 in. 148 pp., illus. $7.50.

REVIEWED BY
HERBERT L. SMITH, JR., A.I.A.

Interiors has launched a projected series of books on various aspects of design with this handsome volume on contemporary living and dining areas. In many respects the book is quite remarkable. Unlike the too familiar be-all and end-all books on "decoration," the work quietly yet attractively presents a thoughtful selection of interiors done in the past few years. There is nothing startling or violently new, but all is of a high standard of design. Perhaps the basic and encouraging approach of the book is best summed up in George Nelson's concluding lines — "Contemporary design is here to stay for a while, and the pressure to prove one's orthodoxy has diminished. With this more mature outlook there should come more good interiors."

The work of 81 designers, a large proportion of them architects, is included. Among the more recent designs, some of the early interiors by such men as Wright, Mies van der Rohe and Le Corbusier have been inserted to show their influence. Each of the interiors presented is accompanied by a concise description stating the problem and how it was met. The text throughout is written in an extremely readable style.

Nelson's introduction sets up a rather provocative chain of thought on the subject of orthodoxy in design. Starting from an observation, made in the early '40s, that "radicals and conservatives appear to be alike in their strong insistence on absolute conformity," he goes on to note that, although this is no longer strictly true of the modernists, "we now have something which has been fairly generally accepted as a 'style,' a word which less than a decade back caused serious designers to tear out what was left of their hair."

A quick leafing through the book certainly reveals this to be true. Some of the interiors are sleek, some heavy textured, some bear the undeniable mark of a particular architect or designer. But most, if not all, have a faint underlying similarity — which is probably as it should be if one concurs with Nelson when he states, "Once the basis of a style has been established . . . there is no further room for drastic change until the development has run its course. This is the period in which we are now working, and it will be quite a while before the vitality of the present movement has exhausted itself." All of which leads one to hope that the remaining vestiges of the militant effect-for-effect's-sake attitude will disappear and that the current style will develop — and flower — on a sounder basis than has sometimes been the case.

Nelson singles out the "preoccupation with *space*" as the most significant development of the past few years. "The contemporary demand," he says, ". . . is really a double one: the freedom which comes only with space, and the freedom to do with the space whatever one chooses. If this is today's major trend, we could do a lot worse." It is decidedly more important than a preoccupation with the meticulous placement of ashtrays!

The new book should have a wide appeal: it should be of great interest to the layman, be an excellent reference to historians, and serve as a stimulating review for active practitioners.

(Continued on page 48)

INSULATED METAL WALLS

for INDUSTRIAL and COMMERCIAL BUILDINGS

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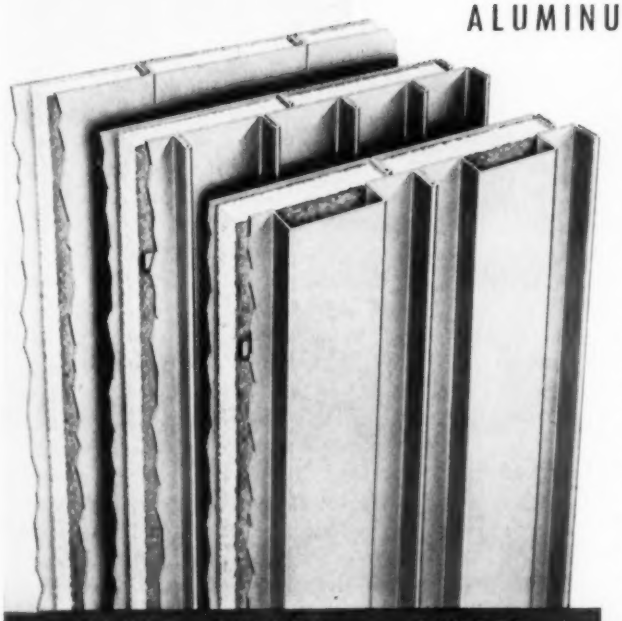

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Below you see the powerhouse of a completely new industrial plant in which over 225,000 square feet of Mahon Aluminum Insulated Metal Walls were employed on the exterior. 1,070,000 square feet of Mahon Steel Deck went into the construction of the roof on this same plant. Insulated Metal Walls are rapidly becoming standard construction for industrial plants in some of the world's largest industries. Among the advantages of this type of permanent wall construction are: light weight . . . lower cost in both material and labor . . . reduction in construction time due to rapid erection even in extreme low temperatures—and, an over-all "U" Factor better than a conventional masonry wall . . . these add up to a substantial saving in over-all building costs. Mahon Insulated Metal Walls are available in the three patterns shown at left. Each lends itself to individual architectural expression in design. The Mahon "Field Constructed" Fluted or Ribbed Wall can be erected up to sixty feet in height without horizontal joints—a feature of Mahon Walls that is particularly desirable in powerhouses or other buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information and Specifications, or write for Catalog No. B-53-B.

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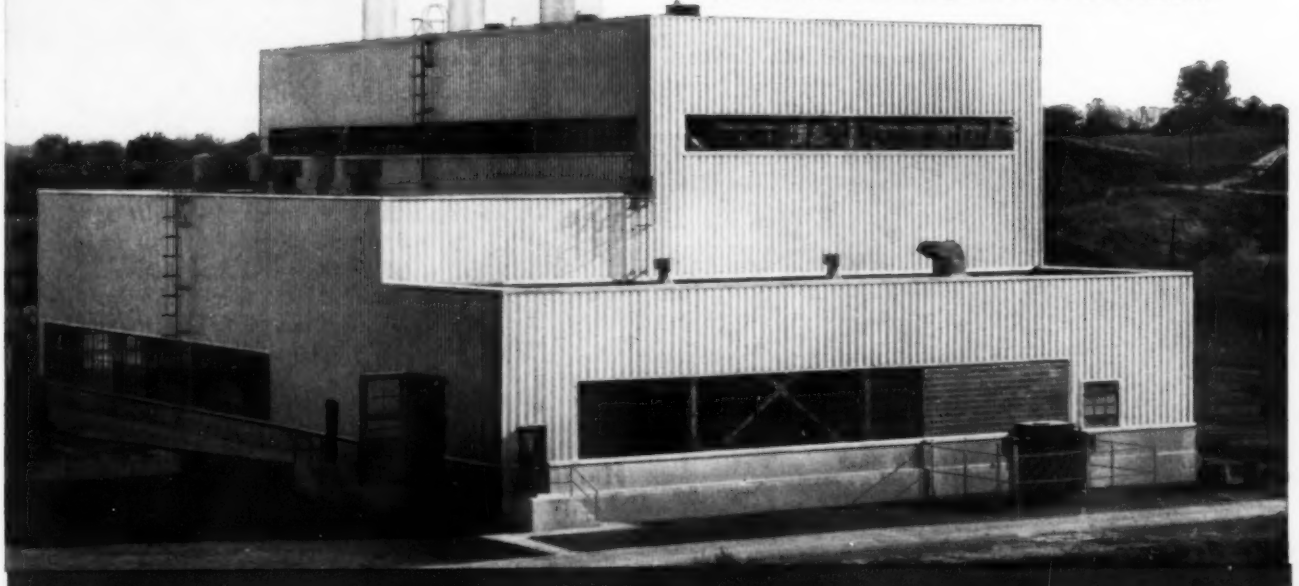

Powerhouse of the new Ford plant, Kansas City, Mo. Mahon Insulated Metal Walls with Aluminum exterior plates were employed throughout on this ultra-modern plant. Giffels & Vallet, Inc., L. Rossetti, Architects and Engineers; Long-Turnell Construction Company, General Contractors.

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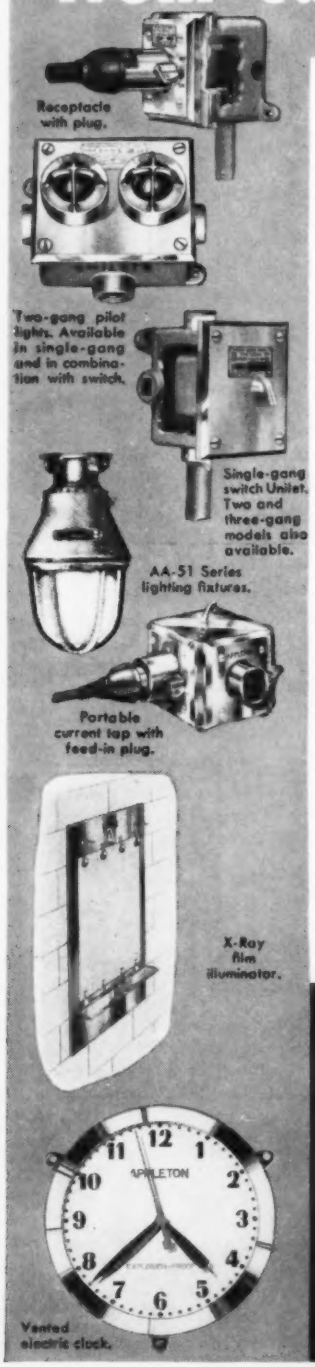
Protect Operating and Delivery Rooms from Catastrophe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Two-gang pilot lights. Available in single-gang and in combination with switch.
Single-gang switch Unilet. Two and three-gang models also available.
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REQUIRED READING

(*Continued from page 46*)

LEGAL GUIDANCE

Legal Guide for Contractors, Architects and Engineers. By I. Vernon Werbin. McGraw-Hill Book Company (330 W. 42nd St., New York 36, N. Y.) 1952. 5½ by 8½ in. 374 pp. $4.75.

An architect was engaged by a client to make plans, specifications and working drawings for three houses. After work on the plans was underway, the architect and client reached a disagreement, and the architect refused to have anything further to do with the work. He brought suit against the client to recover the fee for the work he had produced. But finally he was held liable for damages suffered by the client due to the lack of completed plans.

Had this architect been able to refer to "Legal Guide for Contractors, Architects and Engineers" by I. Vernon Werbin, he might have averted this difficulty. In Case 62 of this book, the details of such a case and the ruling of the court, are clearly and concisely presented.

In the 83 cases similarly treated, persons concerned with construction contracts will find many of their rights and their responsibilities as set forth by the courts. The book is remarkably free of the legal jargon one might fear in such a work, and many cases make interesting reading.

Mr. Werbin is both a licensed professional engineer and a practicing attorney who has specialized in construction contracts. He is well qualified to offer this guidance. George R. Darcy.

SALES DESIGN

Design for Point of Sale. By Ladislav Sutnar. Pellegrini & Cudahy (41 E. 50th St., New York, N. Y.) 1952. 9¼ by 12¼ in. 120 pp., illus.

Ladislav Sutnar, the author of "Design for Point of Sale," has been known for many years as a good designer throughout Europe. Before coming to America he was the director of the State School of Graphic Arts in Prague, Czechoslovakia. At that time his career and style of work was known and well-established in many European countries. In coming to America he widened his scope and know-how of design and for many years has been the Art Director of Sweets Catalog Service, a division of the F. W. Dodge Corporation.

Previously Sutnar in collaboration with K. Lönberg-Holm, Research Director, Sweets Catalog Service, published two books: "Catalog Design, 1944" and

(*Continued on page 354*)

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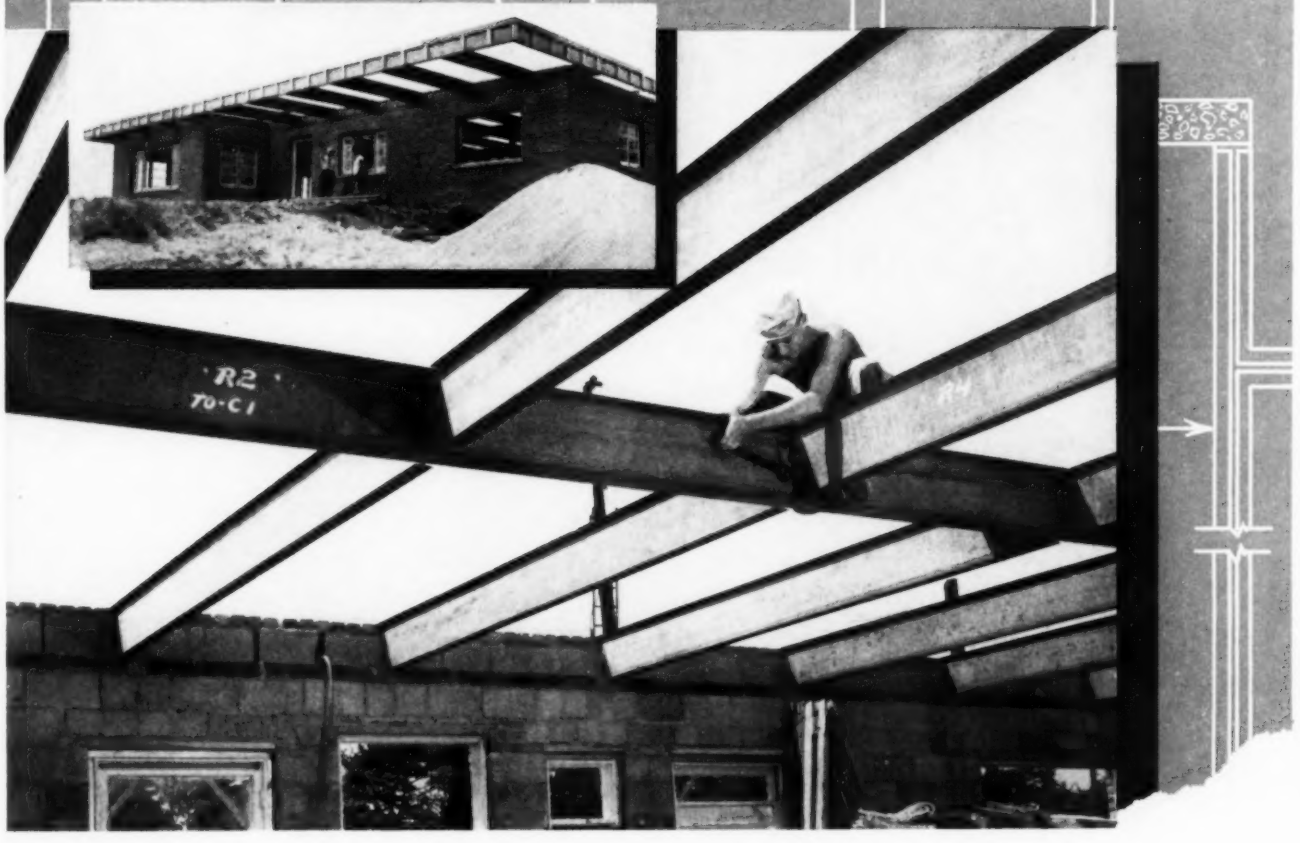

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ACOUSTICAL MATERIALS AT WORK

ARIZONA STATE TEACHERS COLLEGE, Tempe, Arizona

Architect: Edward Varney

General Contractor: Daum-Donaldson Construction Co.

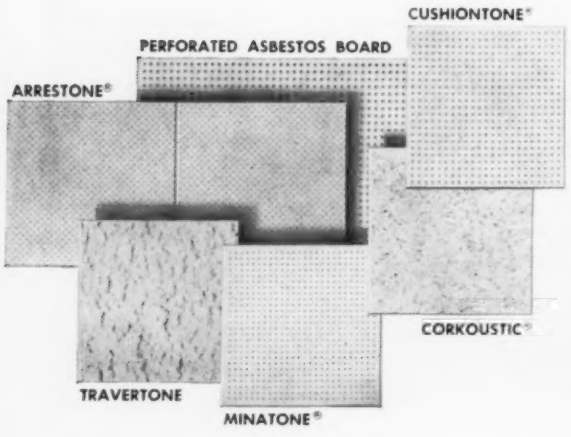
Acoustical Contractor: Barrett & Homes

Low-cost, functional design characterizes the new Administration Building at Arizona State Teachers College. In the lobby, the open architectural plan is made more practical by the sound-absorbing ceiling of Armstrong's Cushiontone.

Cushiontone, a perforated wood fiber tile, has also been installed throughout the classrooms, laboratories, and hallways of the building. Its high acoustical efficiency and low cost made it a logical selection for the architect. Other important features of Cushiontone are its repaintability, high light reflectivity, and ease of installation and maintenance.

Armstrong offers the most complete line of acoustical materials available. Your Armstrong Acoustical Contractor will be glad to give you free, expert assistance with any of your sound-conditioning problems. For the free booklet, "How to Select an Acoustical Material," write to Armstrong Cork Company, 2402 Stevens Street, Lancaster, Pennsylvania.

Noisy footsteps and voices were quieted in Cushiontone-treated corridors like this.



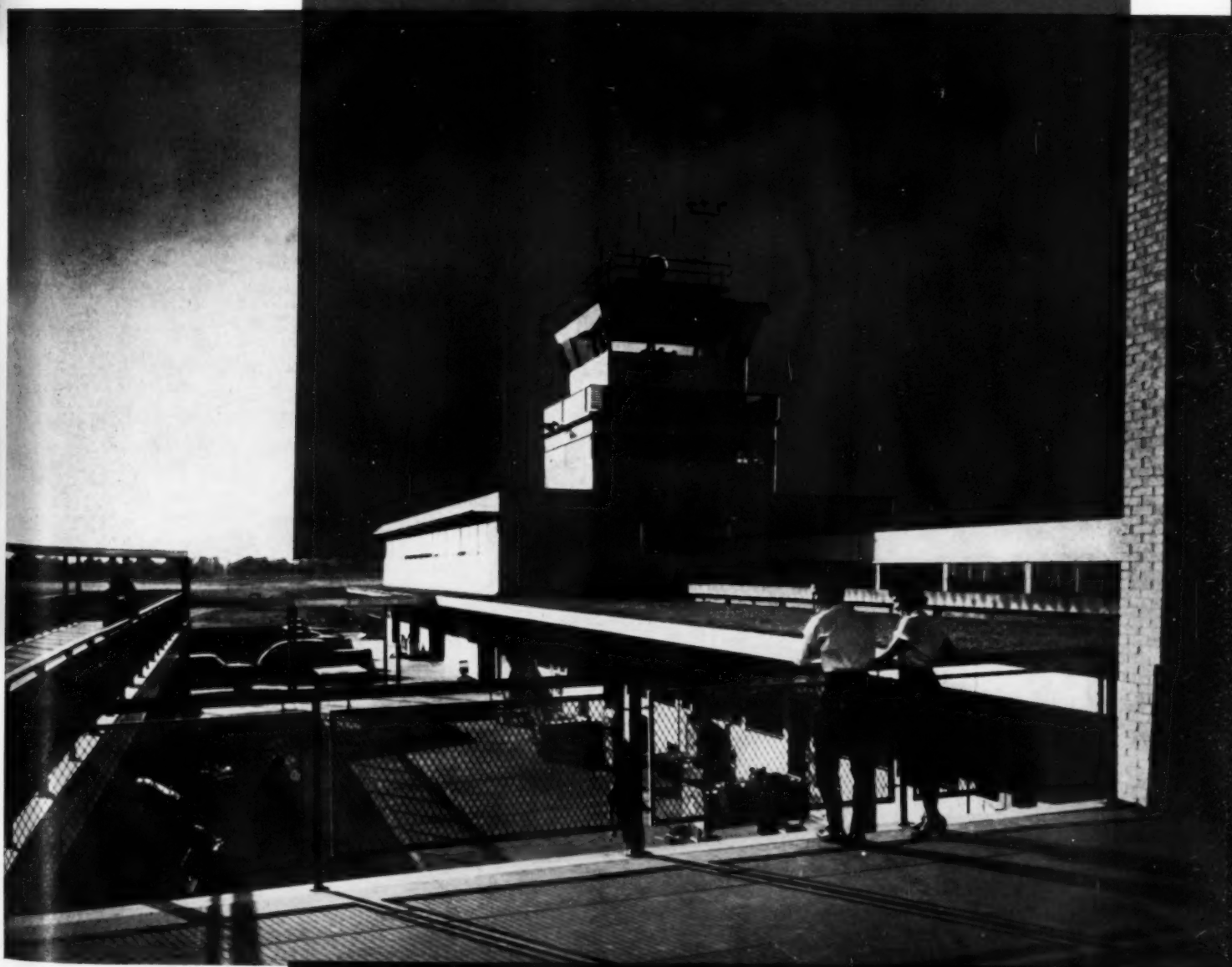
For extra beauty, a ceiling of Armstrong's Travertone was selected for the Board of Regents Conference Room.

ARMSTRONG'S ACOUSTICAL MATERIALS

ENTIRELY ARCHITECT-DESIGNED

Municipal Airport, Shreveport, La.

Samuel C. Wiener, E. M. Freeman & Associates
Architects and Engineers



ARCHITECTURAL
RECORD

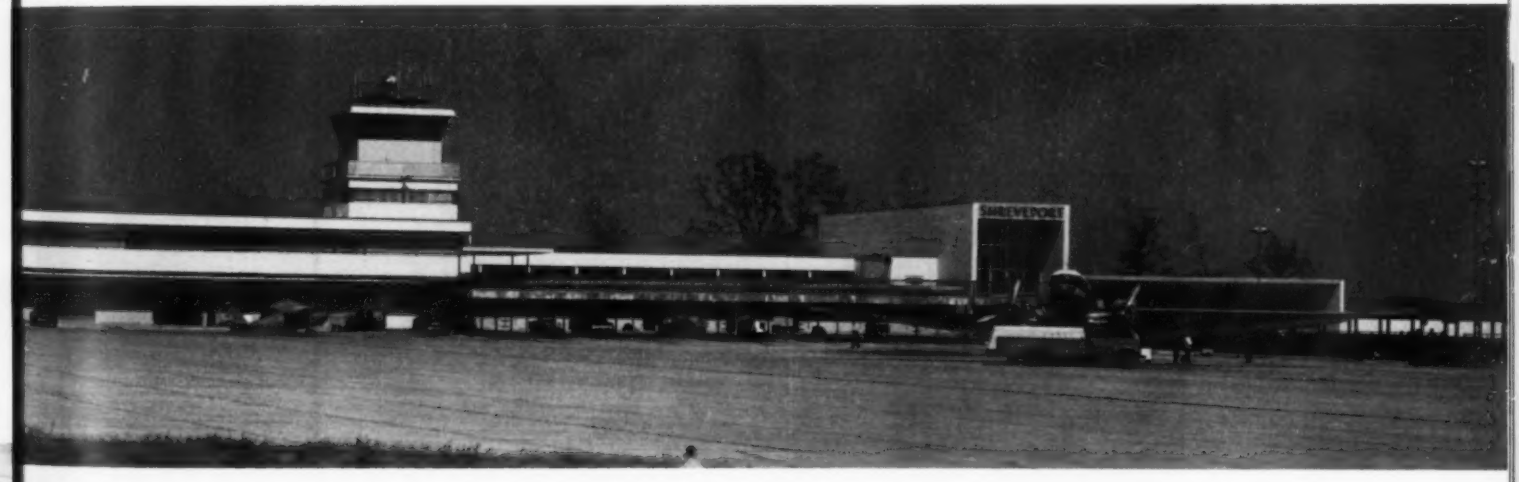
SHREVEPORT AIRPORT

Shreveport's new airport was designed in its entirety—including runway layout and all buildings—by one firm of architects and engineers. Old airfield could not be expanded, was dangerously close to a military field, increasing commercial traffic necessitated move to a safer field where facilities could grow. Photograph shows present stage; black lines are relocated highway (bottom of photo), co-axial cable (across center of field), and service roads. Solid blue indicates next stage, shaded blue, final stage, potential hangar sites at upper left and right

H. O. Wiseman

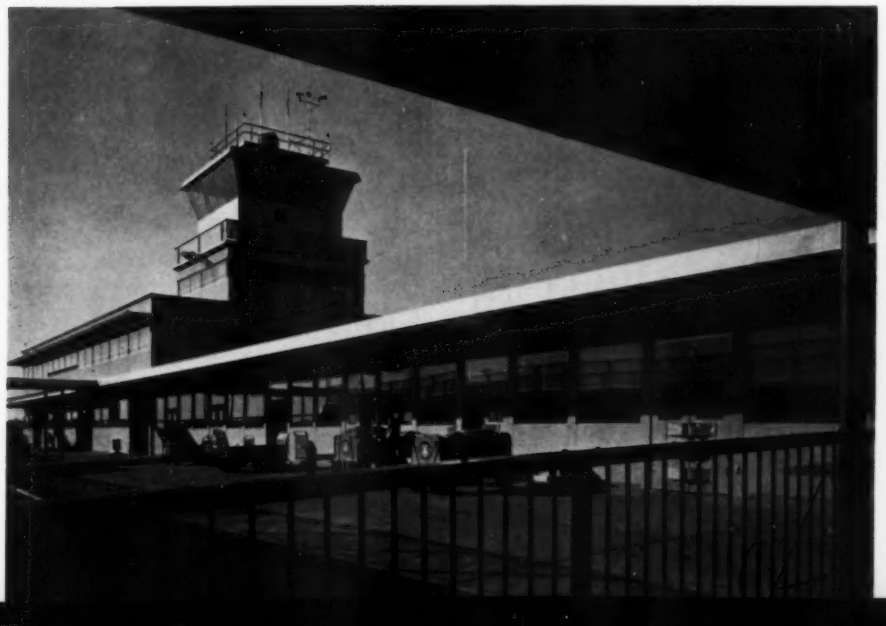
SHREVEPORT'S MUNICIPAL AIRPORT, built under the authority of the city's Department of Public Works, of which H. Lane Mitchell is Commissioner, cost approximately five million dollars. Financed by a municipal bond issue and by a grant from the Civil Aeronautics Administration, it was entirely designed by one architect-engineer firm. Between its conception and its recent opening there were not only many months of work; it was also somewhat of a *cause célèbre* locally, though discussion has now given way to pride in the city's new transportation facility.

Due to increasing air traffic at Shreveport, it became necessary to either enlarge the old airport or build a new one. The old one had a decided advantage; it was within one mile of the city's business center. But it was also on the concave side of a curve in the Red River, which made expansion somewhat of a problem, and military traffic at Barksdale Air Force Base only 3 miles away was a source of annoyance if not of danger. Enlargement versus building anew became a heated issue, involving civic societies, newspapers and individuals. At a referendum, Shreveport voted to build a new airport; a bond issue was passed; and a more distant 1600-acre site, mostly hilly wooded land with some cultivated fields, in several privately owned parcels, was purchased.



As terminal building looks to arriving passengers: facing page, from air, above, when taxiing up; below, from concourse after de-planing

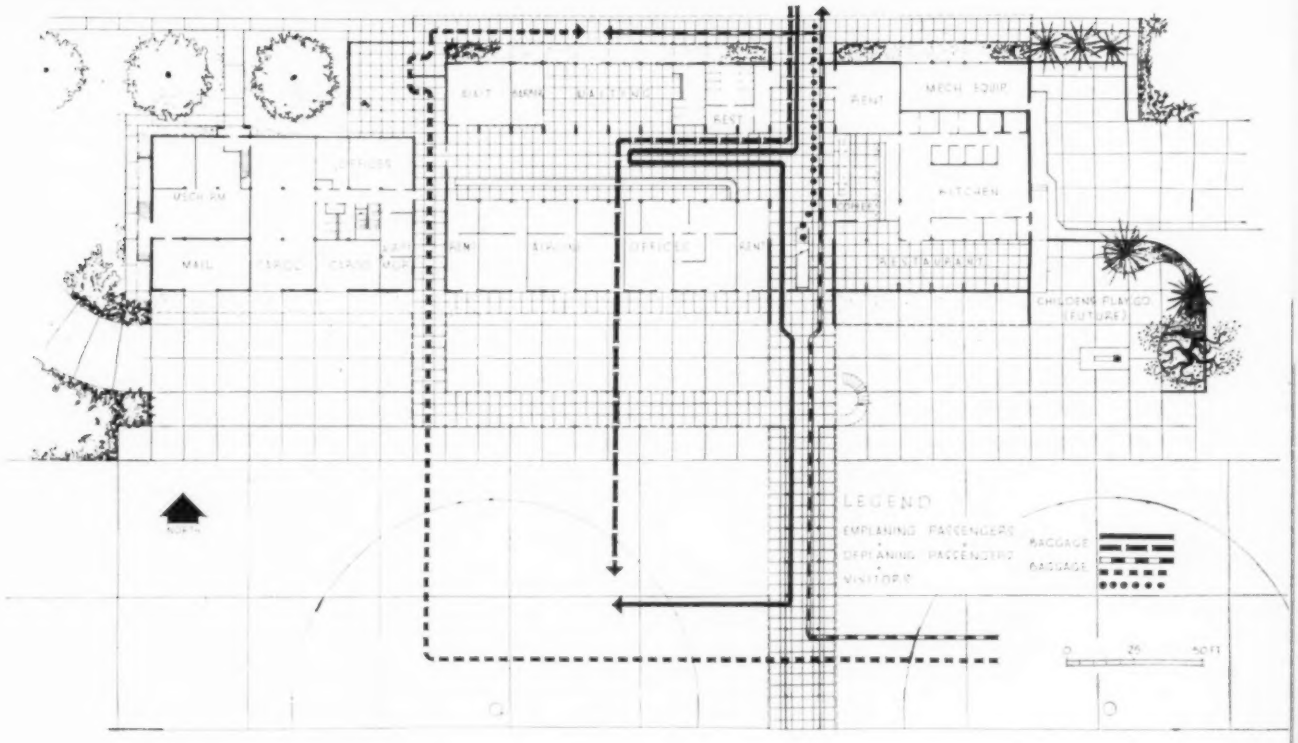
Ulric Meisel



Main Entrance

Inside Lobby

Airline Counters



Passengers use lower doors to field; visitors, stairs to observation level above

Site preparation consisted of a substantial amount of clearing, grading, filling and compacting. A highway was re-routed; a co-axial cable had to be protected; some pipelines and utilities were relocated. Roads were extended, water wells drilled, power and gas brought in, and subsurface drainage installed. Now built are two runways, one, instrument-controlled, 6400 by 200 ft; the other 4800 by 150 ft. Locations for two more runways have been determined. Taxiways are 175 ft wide. Concrete runways and plane parking areas are 8 to 10 in. thick. In addition to the Terminal Building there are buildings for Maintenance, Remote Communications, Gasoline Fueling facilities and Water Pump House. Spots for future buildings and hangars have been determined. The entire airport and its facilities can grow in orderly fashion as needs arise.

The Terminal Building is primarily a transportation

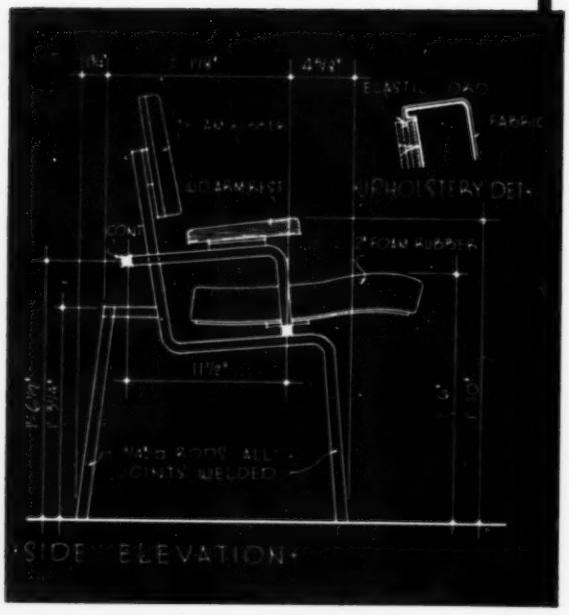
Pedestrian and baggage traffic are not mixed

Ulric Meisel

depot, with circulation of passengers, personnel, visitors, baggage and service equipment carefully organized on a one-level scheme to minimize interference. The architects decided to separate the administration and operation unit from the passenger unit by a breezeway. It was early decided not to bring deplaned baggage into the building or to handle it unnecessarily; the breezeway facilitates this. The structure, of reinforced concrete and steel frame faced with brick, has no basement; a crawl space continuous under both units and breezeway will permit future changes in wiring and services as tenants and equipment change. Public, rental and office spaces are air conditioned; the two mechanical rooms are at a slightly lower floor level.

Special features, some now completed, include the 350-ft-long "finger" concourse, 200-ft-long observation deck, and space reserved between building and ramp for a future planted, equipped children's playground. The project was conceived as a show-place for the city as well as a smoothly functioning airport.

Left, observation platform on south (field) side of structure, center . . . stair



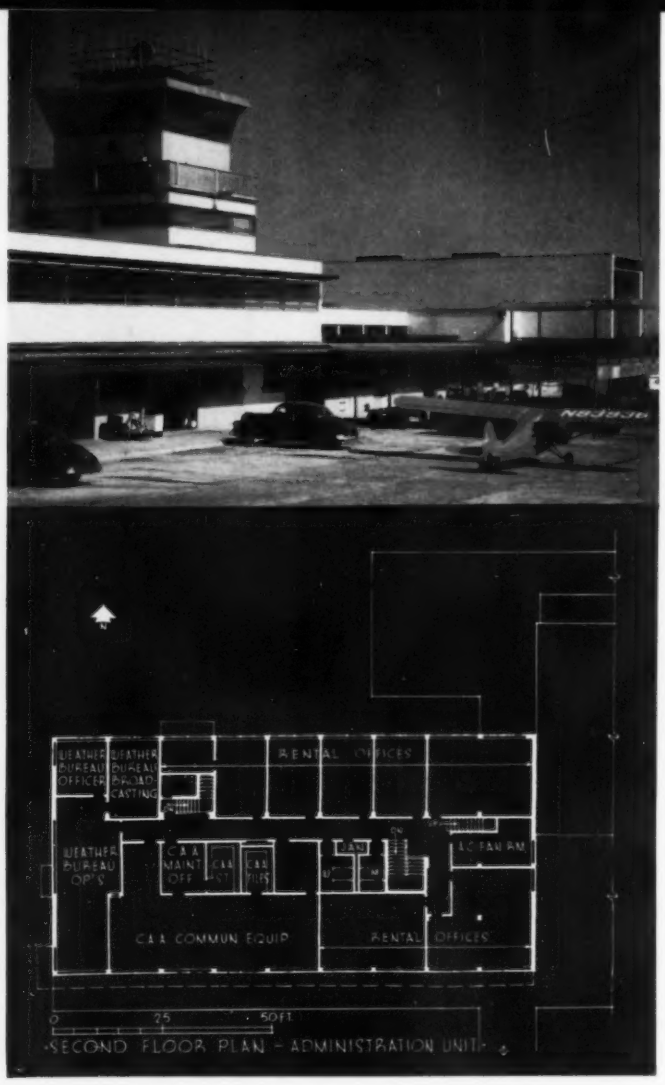
Furniture in main waiting room, specially designed by architect-designer James R. Lamantia of New Orleans, is of height suitable for waiting passengers but not comfortable enough to encourage lounging. Benches are convenient height for depositing baggage. All pieces are heavier than strength alone demands, to prevent pushing them around. Removable plywood panels permit taking off fabric for cleaning. Floor is terrazzo, walls marble, ceiling acoustical tile

Furniture photos: Frank L. Miller

. . . stair to concourse level, right, restaurant

Ulric Meisel

SHREVEPORT AIRPORT



Second floor of administration unit (plan at left) contains weather bureau, CAA offices, rental space. As in all air terminals, official spaces here and in control tower floors (controller offices, radar room, control cab) contain much special equipment required by regulations, with provision for more and different future equipment

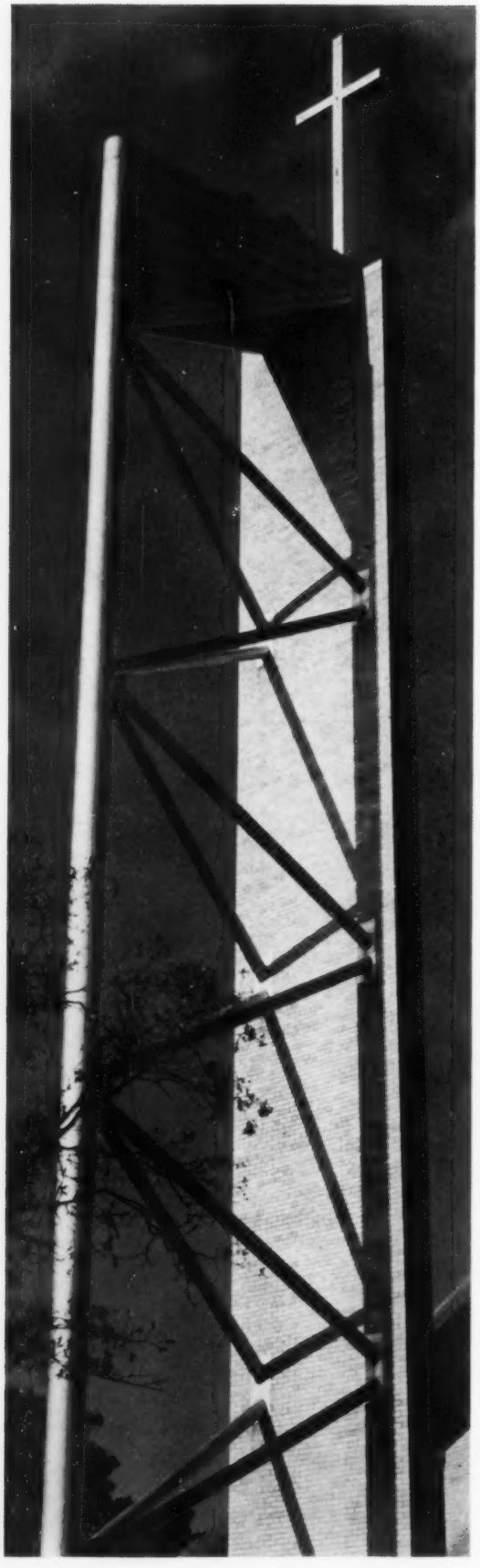
H. O. Wiseman

H. O. Wiseman

Steel guard rail at concourse and stair to observation deck are painted fire-engine red; copings and signs are porcelain enamel. Below: de-planed passengers and baggage meet under cover on north side

Ulric Meise

AWARD-WINNING PROTESTANT CH

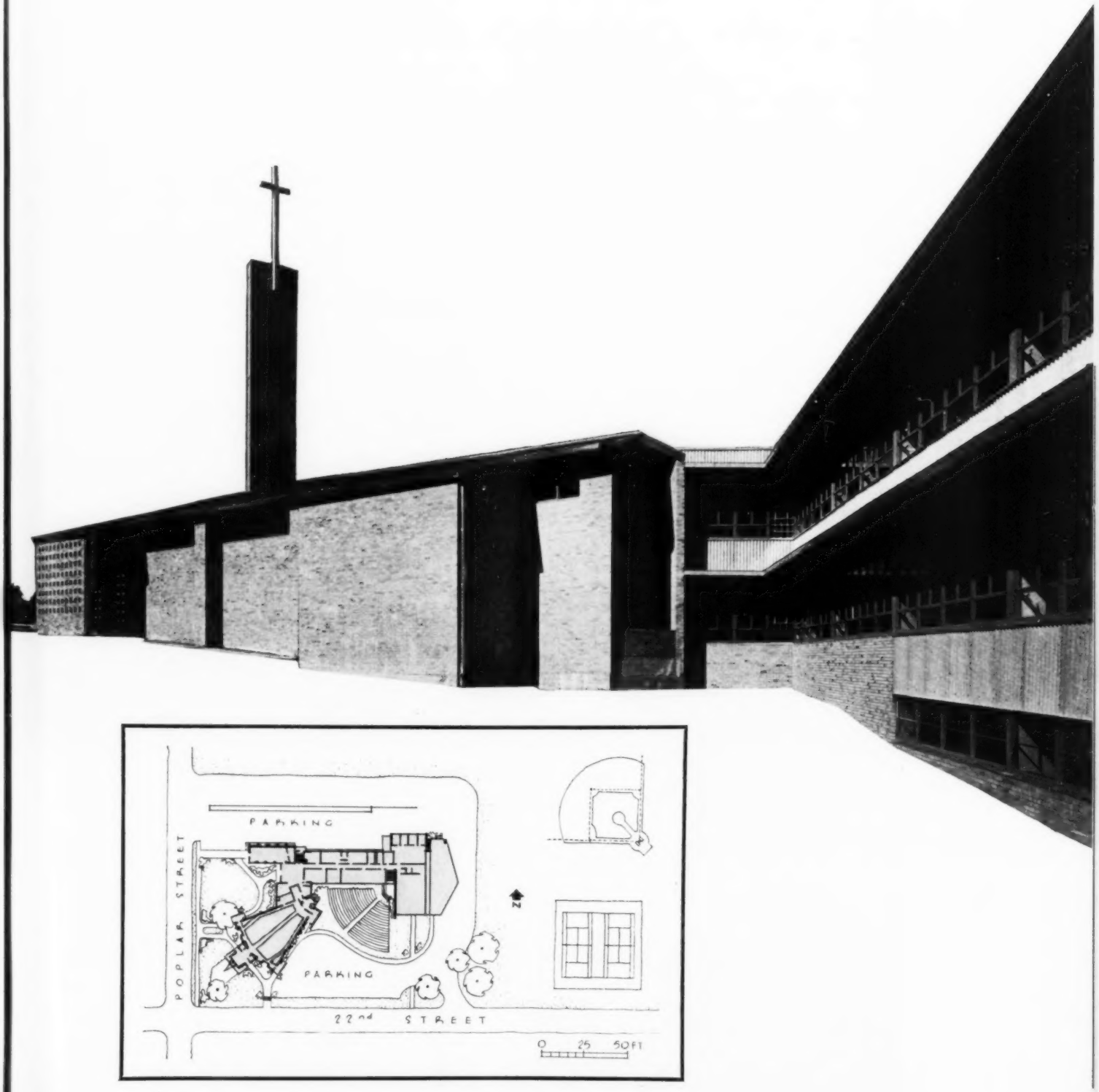


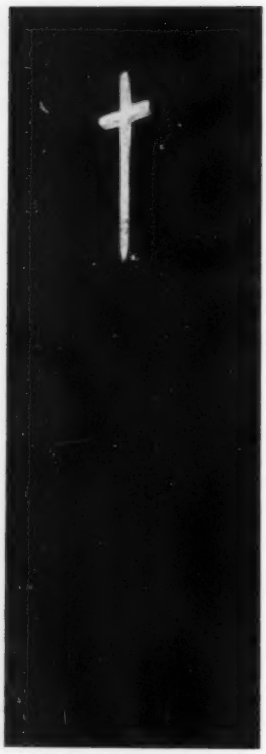
Earl Saunders

Given an Award of Merit at the Gulf States Regional A.I.A. Conference last October, North Little Rock's new First Methodist Church has a commanding site in a residential area where many of its congregation live. The site slopes sharply, a fact which was turned to advantage in designing the building

CHURCH IN NORTH LITTLE ROCK, ARKANSAS

First Methodist Church
Brueggeman, Swaim & Allen
Architects

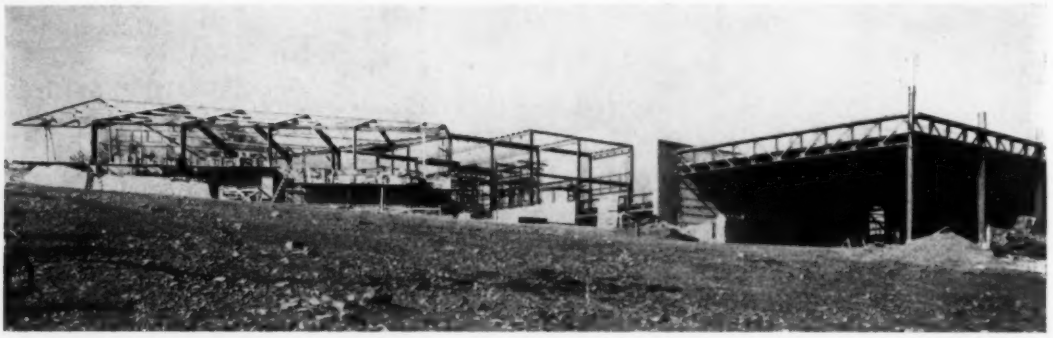




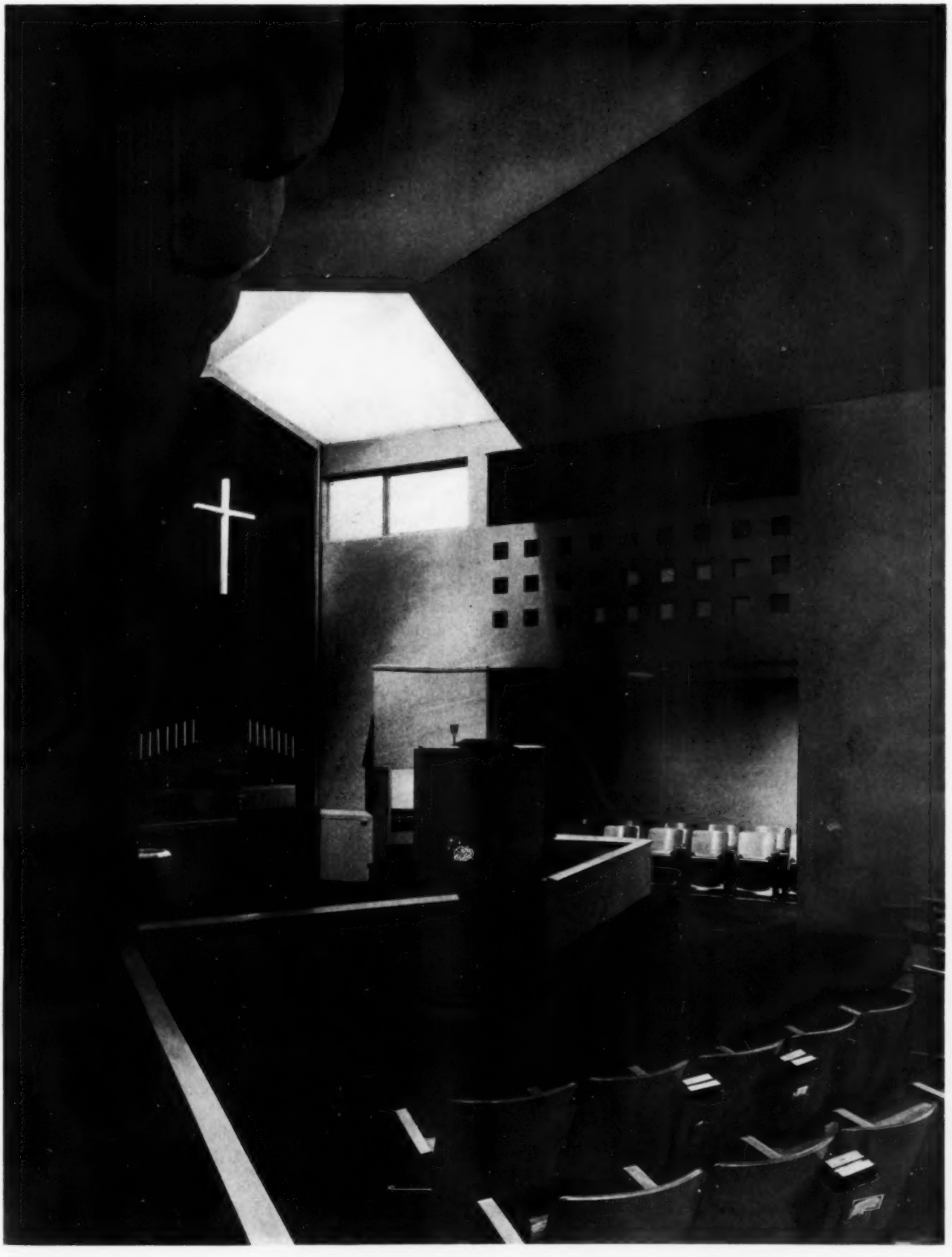
AWARD-WINNING CHURCH

THE FIRST METHODIST CHURCH of North Little Rock, Ark., formerly occupied a building on a small but valuable downtown corner with no parking facilities. Its new building is on a large site in a residential area, where most of its members live — a plot bought for a fraction of the price at which the old one was sold. The congregation is not wealthy, so despite this financial profit the buildings had to be designed with economy continually in mind if the full program — sanctuary, chapel, educational building, community facilities, outdoor chapel and parking space for 100 cars — was to be realized. As it is, the east wing of the educational unit is at present not built above the ground floor, and until it is completed the outdoor sanctuary cannot be finished. All other requirements were met, however, though only after the membership had agreed to accept contemporary rather than traditional design.

Even so, the architects' utmost ingenuity was called for. The site drops 35 ft from northwest to southeast, a fact which was turned to distinct advantage; every possible cubic foot of excavation was eliminated by placement and design of the units. The carillon tower, factory-fabricated of aluminum, was erected in one piece and attached to the vertical brick slab which braces the metal. The sanctuary, fan-shaped because that was the economical en-



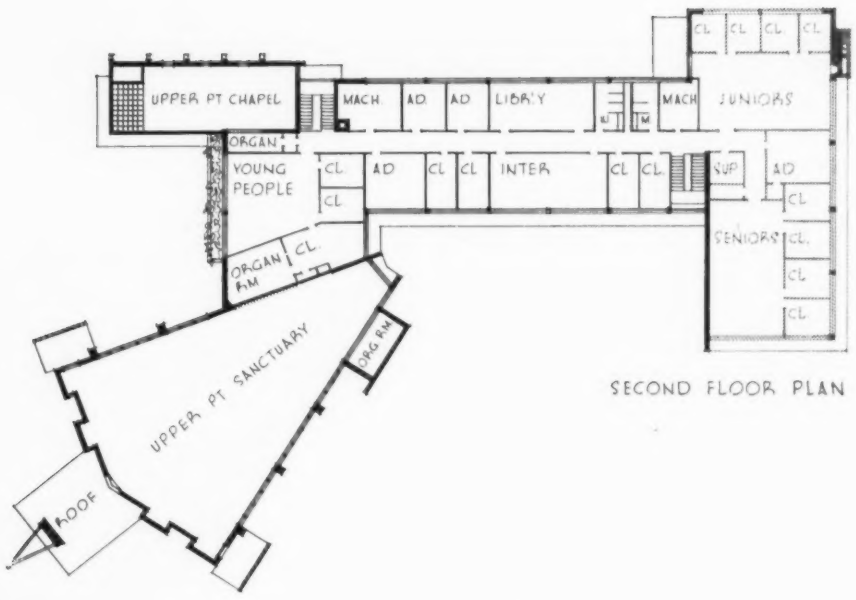
Structure follows slope with minimum excavation. Photo below: at left is chapel; right, side entrance to narthex



Earl Saunders

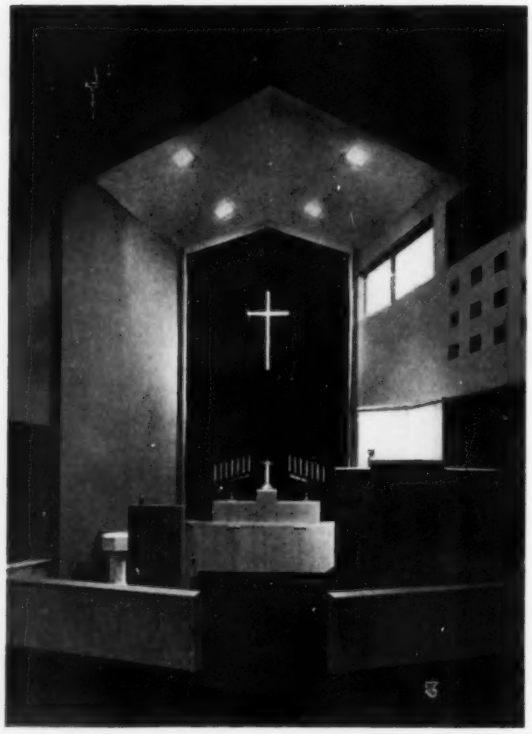
Sanctuary, megaphone-shaped, has walls converging toward chancel. Concrete floor slab was laid directly on slope with little more than simple grading operations

AWARD-WINNING CHURCH



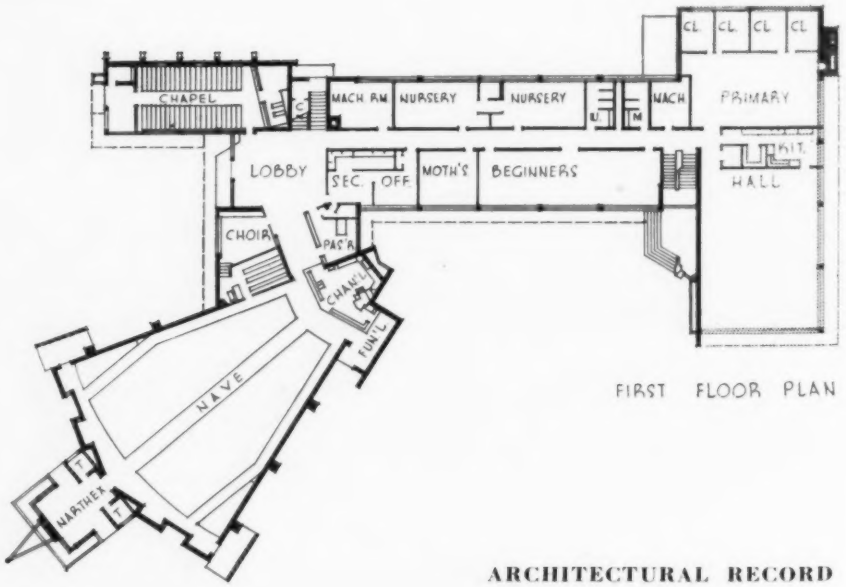
SECOND FLOOR PLAN

Earl Saunders



closure for the desired number and arrangement of seats and for acoustical reasons, has its sloping floor slab laid directly on existing grade. Sanctuary framing is a series of rigid steel bents of diminishing spans, fireproofed with vermiculite. Weight is saved in the educational unit by using steel trusses for spandrels, fireproofed and covered with corrugated asbestos-cement sheets.

In relationship and circulation the various units function well. The family room for funerals is so located that it has a direct entrance, maximum privacy and immediate access to the chapel. Except for the top floor of the educational building, every level can be entered directly from natural grade. Construction is concrete and steel, with brick, glass and asbestos-cement sheets on exterior walls, steel windows, aluminum and built-up roofs; interiors are plaster, exposed brick, glass, tile, asphalt tile and carpeting. Lighting is both incandescent and fluorescent, with sanctuary lights on rheostats. Sanctuary windows are green glass with symbols sandblasted in them. The whole church has year-round air conditioning. Cost was $372,000, or $10.50 per sq ft, $.76 per cu ft.

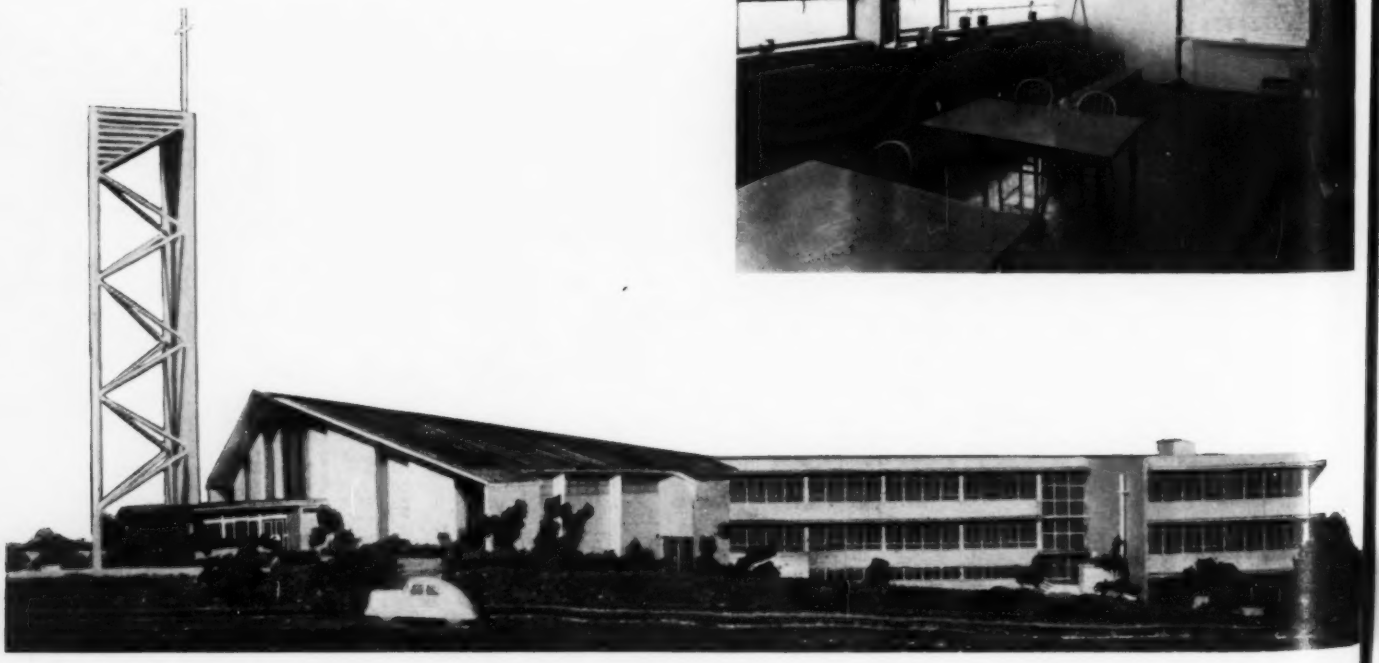


FIRST FLOOR PLAN

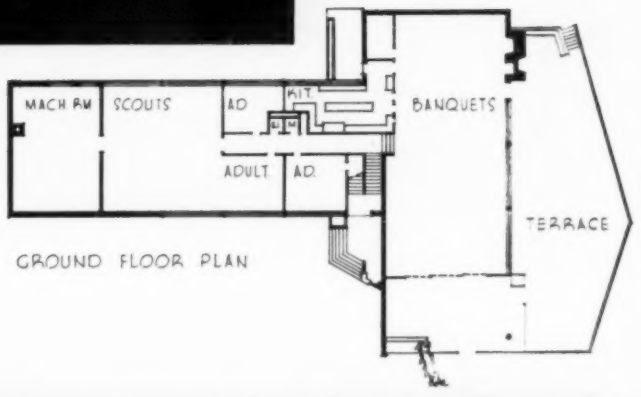
Although sanctuary walls average only 16 ft in height, their convergence and the sloped floor afford extra height — 24 ft — desired for design of chancel. In first educational building, areas shown gray on first and second floors will be built in future; present building terminates at stair hall

Non-parallel enclosing surfaces produce desirable acoustic properties in sanctuary. Only acoustic treatment is absorbent plaster in center ceiling panel. Although choir (below) is at one side, no noticeable variation in intensity or quality of sound has been reported

Above, lobby between sanctuary and educational building; chapel is accessible through door in center of photo. Bottom of page, model shows eventual appearance of educational unit when two-story wing at right is added. Between sanctuary and educational building is to be an outdoor sanctuary fitting the natural contours. At right, typical classrooms

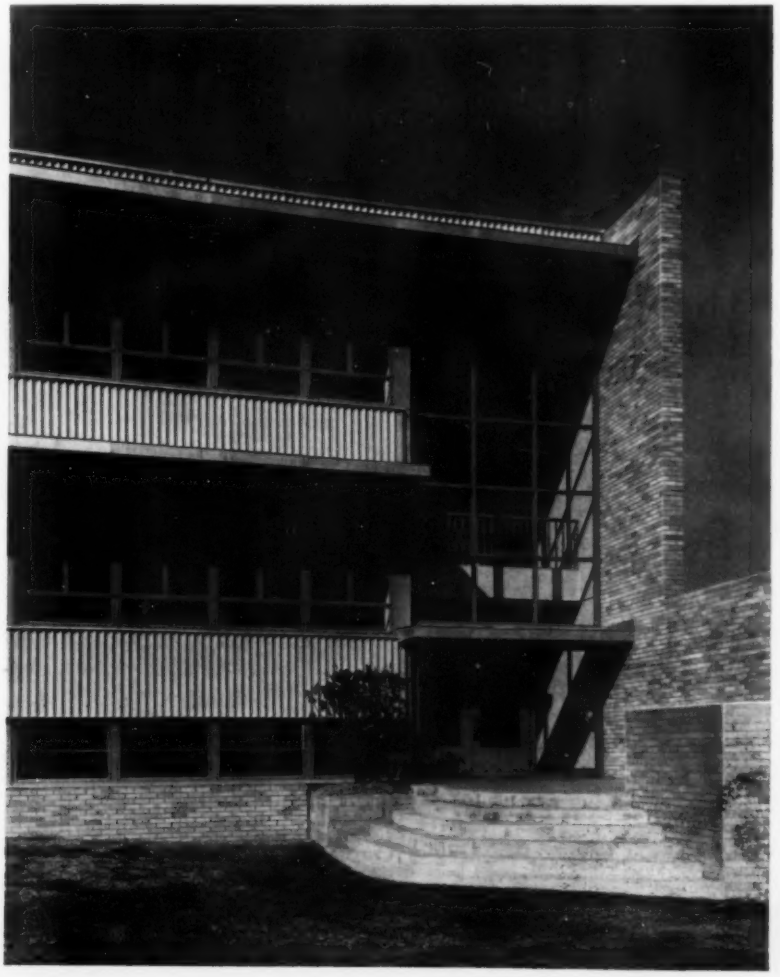


Banquet room on ground floor (photo above) is only portion of east wing of educational unit now built. Adjacent outdoors is Interchurch League softball field, lighted for night use. Tennis courts have been proposed

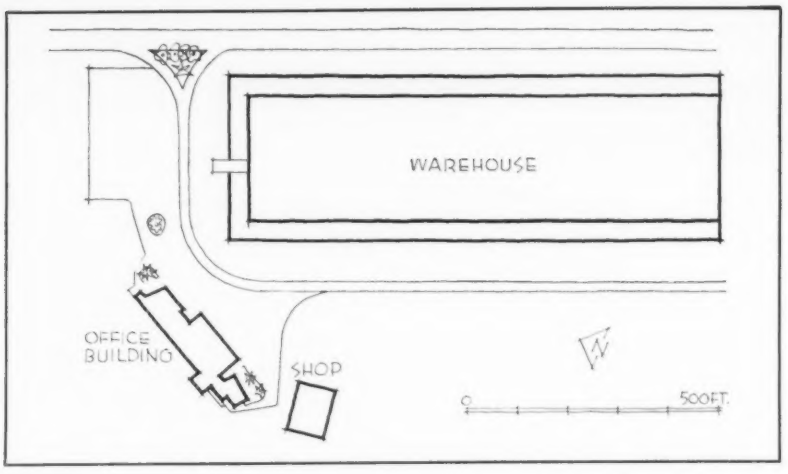


GROUND FLOOR PLAN

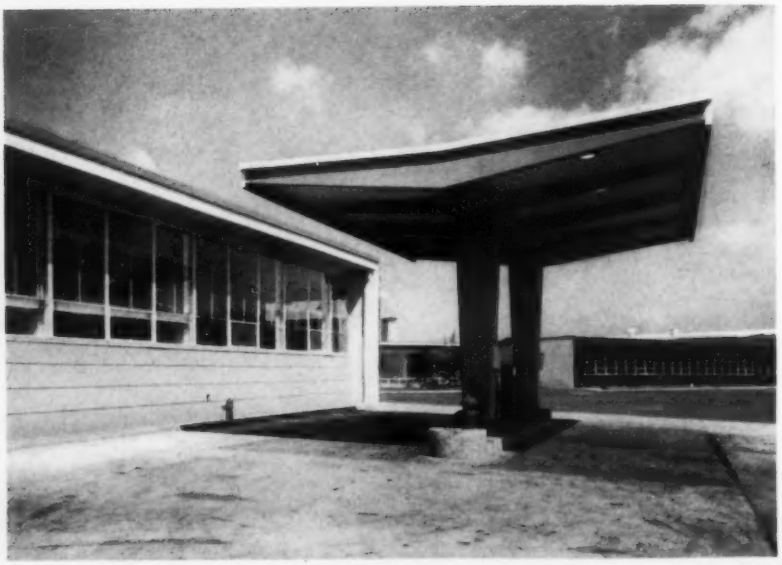
Earl Saunders



Photo, right: end of educational unit now built. Platform at grade entrance to ground floor has brick pulpit for use when outdoor sanctuary is completed, as shown in model photo on facing page. Buildings shade this area from late afternoon sun



ASSOCIATED GROCERS CO-OP,



Robert Hugh Ross, Architect

George M. Anderson and

William C. Bunch,
Structural Engineers

George S. Troberg,
Mechanical Engineer

Morrison Knudsen Co.,
Contractor

Crisp new headquarters combine efficient, low-overhead facilities for mass purchase and distribution of supplies for 600 member stores

SEATTLE, WASHINGTON

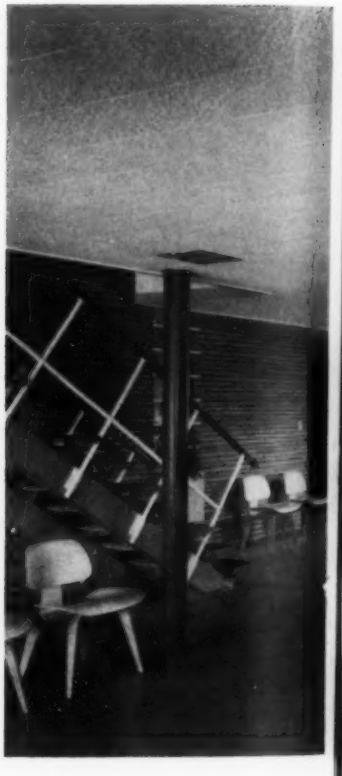
Dearborn-Massar

IN RATHER STRIKING CONTRAST to the drab conditions usually associated with warehouse operations, these clean-cut buildings provide pleasant, efficient accommodations for Associated Grocers Co-Op. The organization, associated for some 18 years, has grown steadily since its beginning; membership today totals some 600 stores in Washington, Oregon, Alaska and the Hawaiian Islands. The expansion in size and in volume of business (sales for 1951 were around $33 million) created a severe strain on operations and efficiency, made it difficult to keep costs down in the original buildings. This overhead has been considerably reduced in the new center, and a good working environment provided, by careful plan organization and selection of materials and equipment.

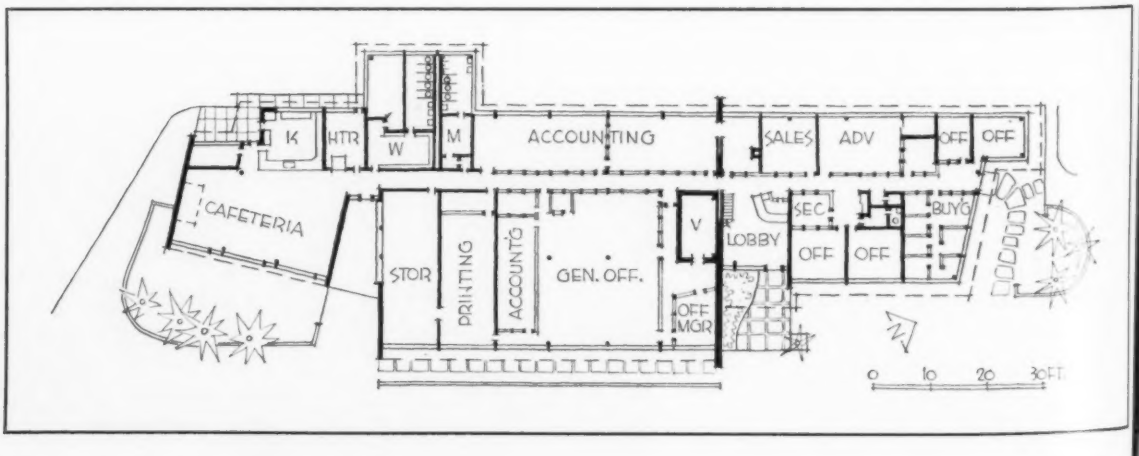
The buildings are located on a 26-acre suburban site in Seattle's South End. The group includes an administration office building, a large warehouse, a maintenance shop for trucks and ample parking space. All buildings are related by color: gray, coral trim.

IN PLAN, THE OFFICE BUILDING is divided into two distinct parts by a fire wall with fusible link fire doors; one section contains executive and buyers' offices, the other is devoted to general office space and a cafeteria-auditorium for employees. The general office is connected to the warehouse by an underground pneumatic tube system to expedite orders.

THE WAREHOUSE is a tip-up slab structure and contains: canned goods storage area, frozen foods storage area, special banana rooms and an assembly line for orders. The grounds are landscaped with simplicity for easy upkeep.

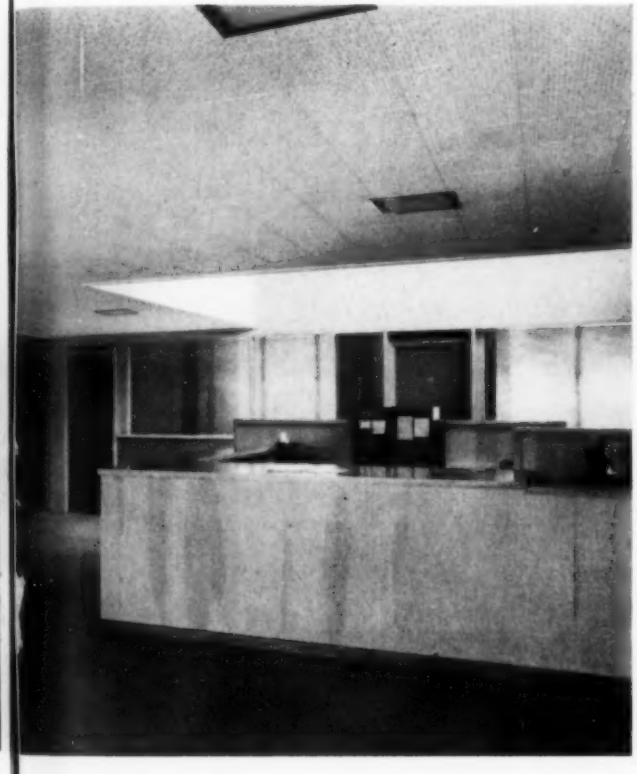


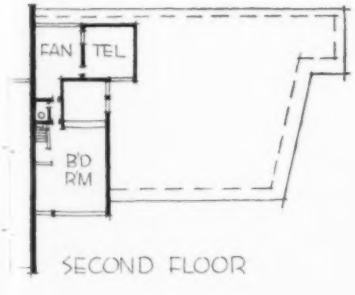
Dearborn-Massar



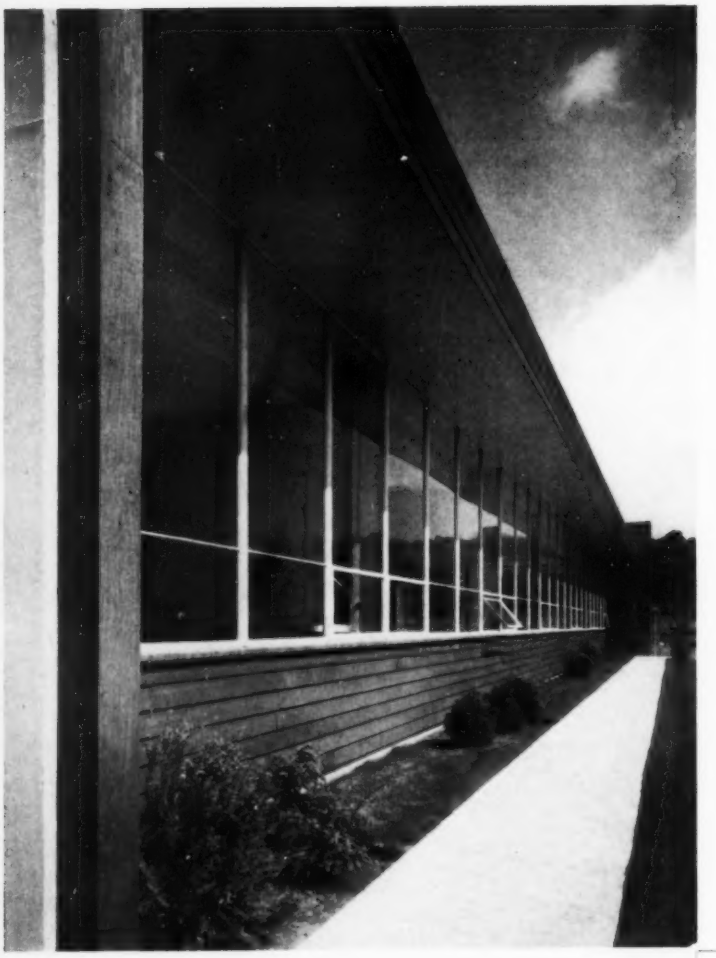
Clean lines and durable materials minimize Co-Op maintenance costs

THE STRUCTURE of the office building is steel frame. Exterior walls are brick and frame surfaced with creosote-stained cedar siding. Interiors have similar finishes, plus painted plaster board with taped joints (see lobby photo, center). The roof is built-up, with asphalt and aluminum coat finish. Floors are oxy-chloride cement on reinforced concrete slabs, pegged random oak in board room (below). Thermal insulation is rock wool batts, acoustical is random perforated acoustical tile. Considerable saving was made by using a split heating system: radiant floor panels with pipes 48-in. o.c. in slab, augmented by baseboard heaters on outside walls.





SECOND FLOOR



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2

3

Office efficiency in the Co-Op is increased by a number of features as illustrated:

1 *Good daylighting from windows to ceiling, wide overhangs for sun protection*

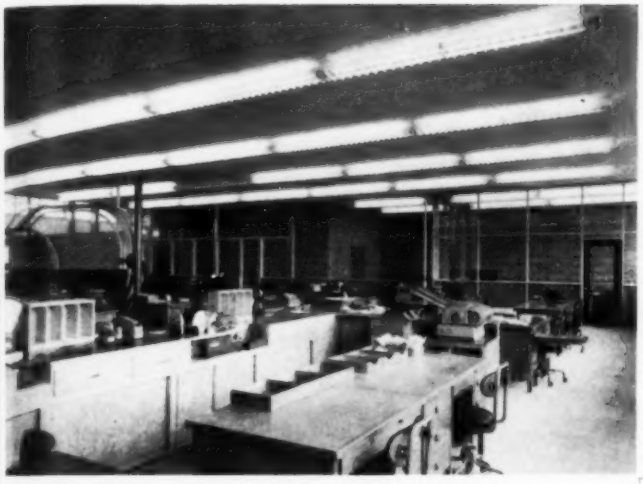
2 *Good corridor lighting from clerestory and glass partitions; double glazing and acoustical wall panels reduce noise*

3 *Pleasant working environment provided by gray and coral color scheme, ventilation system and vent sash keep air fresh; heating by radiant floors, baseboards*

4 *Comfortable artificial lighting level by fluorescent fixtures. Pneumatic tubes to warehouse; orderly equipment layout*

5 *Separate entrance to cafeteria and offices forms outdoor patio*

6 *Cafeteria serves 100 employees, doubles as auditorium for 300. Slanted glass is green, glare-reducing. Fiberous acoustical material between beams reduces noise*



4

5

Dearborn-Massar

6

NEW BUILDING FOR CONSOLIDATED SCHOOL

Winecoff High School, Cabarrus County, North Carolina

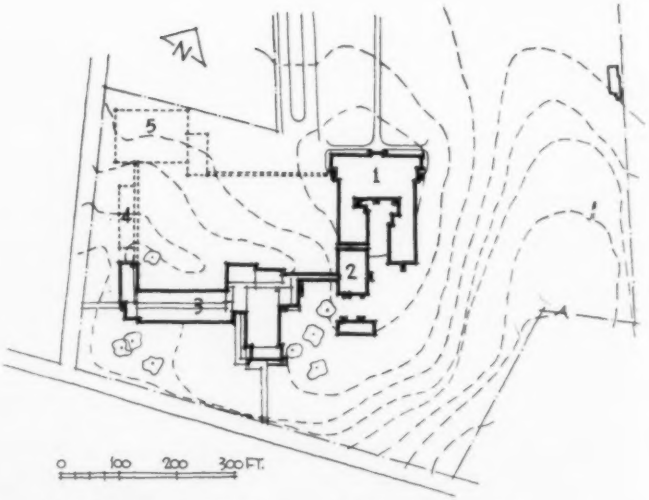
A. G. Odell, Jr., & Associates, Architects

Joseph W. Molitor

WINECOFF'S NEW HIGH SCHOOL BUILDING is the first step in a long-range expansion program which eventually will give the school an integrated and unusually complete plant.

Before the program got under way, the plant consisted of one main classroom and cafeteria building serving all 12 grades (Winecoff is a consolidated county school, located about half-way between the towns of Concord and Kannapolis). The first decision made was to use the existing building for the elementary grades, and to erect new facilities for the high school. The second decision was to place the new building well toward the rear of the property, at a 90 deg angle to the cafeteria. This location offered several important advantages: (1) it provided direct community access to the auditorium and library from a newly-opened road at the rear of the school site; (2) it centered the existing cafeteria between the upper and lower schools; and (3) it formed the basis of the projected quadrangle which is part of the school's long-range plan. At present the eventual quadrangle is occupied in part by the old gymnasium and an agriculture-canning building, both of which are to be razed; a new gymnasium and a vocational building are planned for the western end of the site, to complete the quadrangle now edged on east and south by the original school building and the new high school.

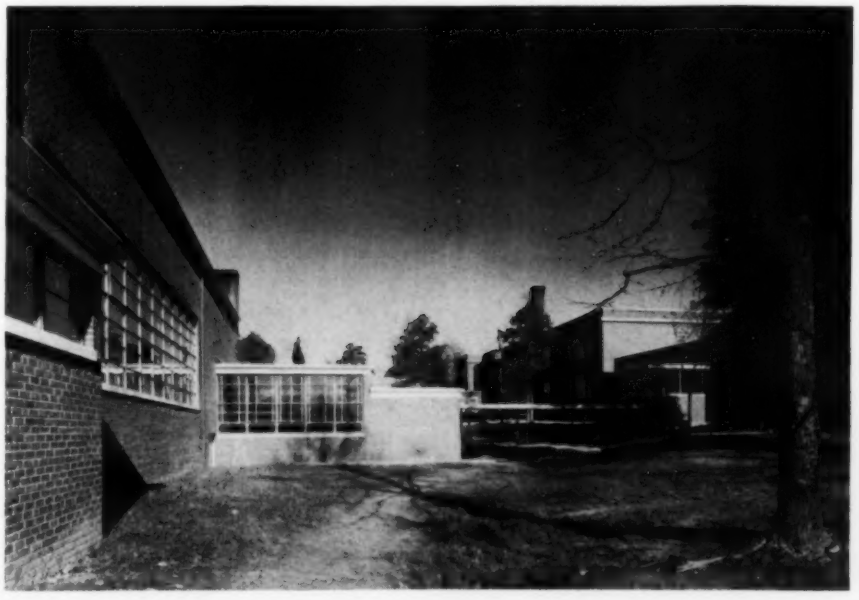
Site plan below shows eventual school plant. Quadrangle at present contains old gymnasium and agriculture-canning building, both of which are to be removed; new vocational building (4) and gym (5) will close in west end

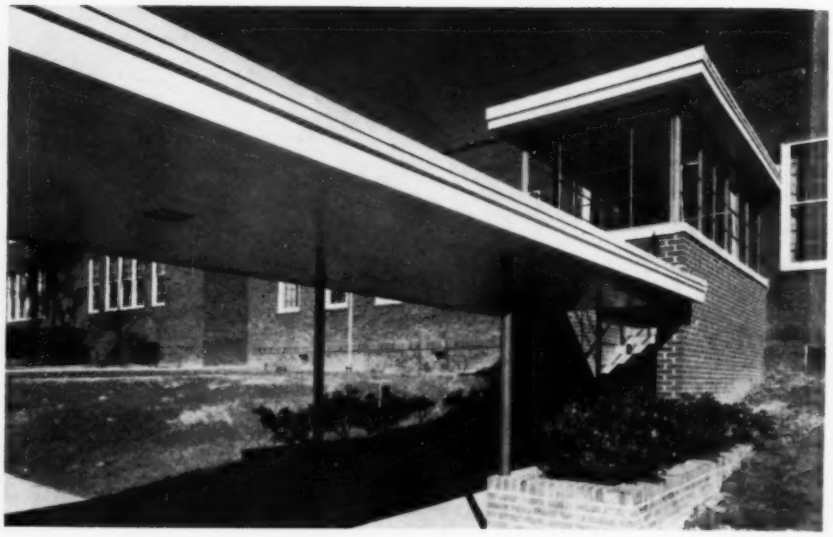


1. ORIGINAL MAIN SCHOOL (PRESENT ELEMENTARY)
2. CAFETERIA
3. NEW HIGH SCHOOL
4. FUTURE VOCATIONAL BUILDING
5. FUTURE GYMNASIUM

Auditorium of new high school building (above and below) has direct access from road at rear of site to facilitate community use. Wing includes also library and teachers' quarters

Below: stairs and covered walk connect one-story high school building (left) with lower-level cafeteria and original two-story classroom building. The two buildings harmonize unusually well





Unlike many a school board in these days of multi-purpose rooms, the Cabarrus County Board is providing the Winecoff School with wholly separate auditorium, cafeteria and gymnasium. The new high school facilities include also a library, two well-equipped science laboratories and a virtually separate home economics wing. The slope of the site has been used to segregate upper and lower schools, but each is connected directly with the central cafeteria.

The auditorium wing is the connecting link between the two schools. Designed primarily to meet the needs of the high school group, it is equally accessible to the elementary classes and the community as a whole. A single walk connects the rear road with both auditorium and library, as well as with high school classrooms.

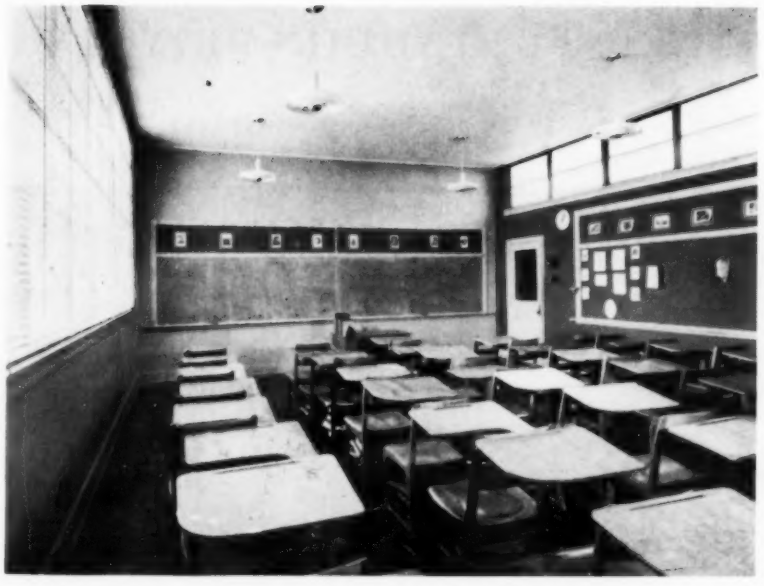
WINECOFF HIGH SCHOOL

Across-page: far left, high school classroom wing from auditorium terrace; center, covered walk, looking toward high school wing from cafeteria. Left: band room is well silenced by perforated asbestos tile over blanket insulation. Immediately below: auditorium has permanent seats, generous platform. Bottom of page: library has windows along whole north side, clerestories on south, double door faces lobby at rear (south) side of school site

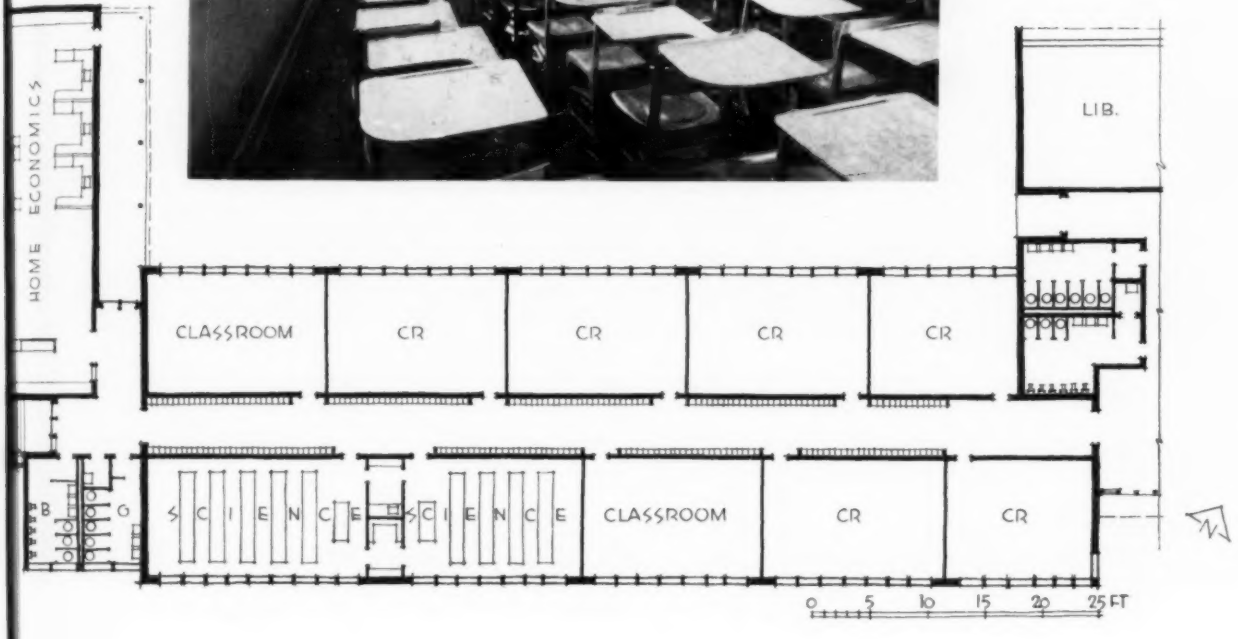
Joseph W. Molitor

Joseph W. Molitor

Home economics room, like all other classrooms in new high school building, has windows along one side, clerestory on other, storage and display space is noteworthy. Below: left, lockers line entire corridor of high school wing; center, typing classroom has equipment easily shifted from room to room



Left: typical classroom has good blackboard and bulletin board space, movable furniture, bi-lateral lighting. Bottom of page: the two science laboratories share hood space, but each is fully equipped otherwise



PLANNED FOR ADULT PRIVACY AND

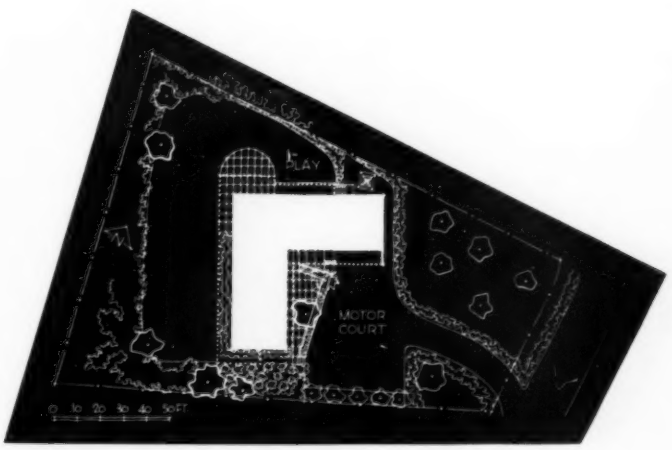
Robert C. Cleveland

SUPERVISION OF CHILDREN

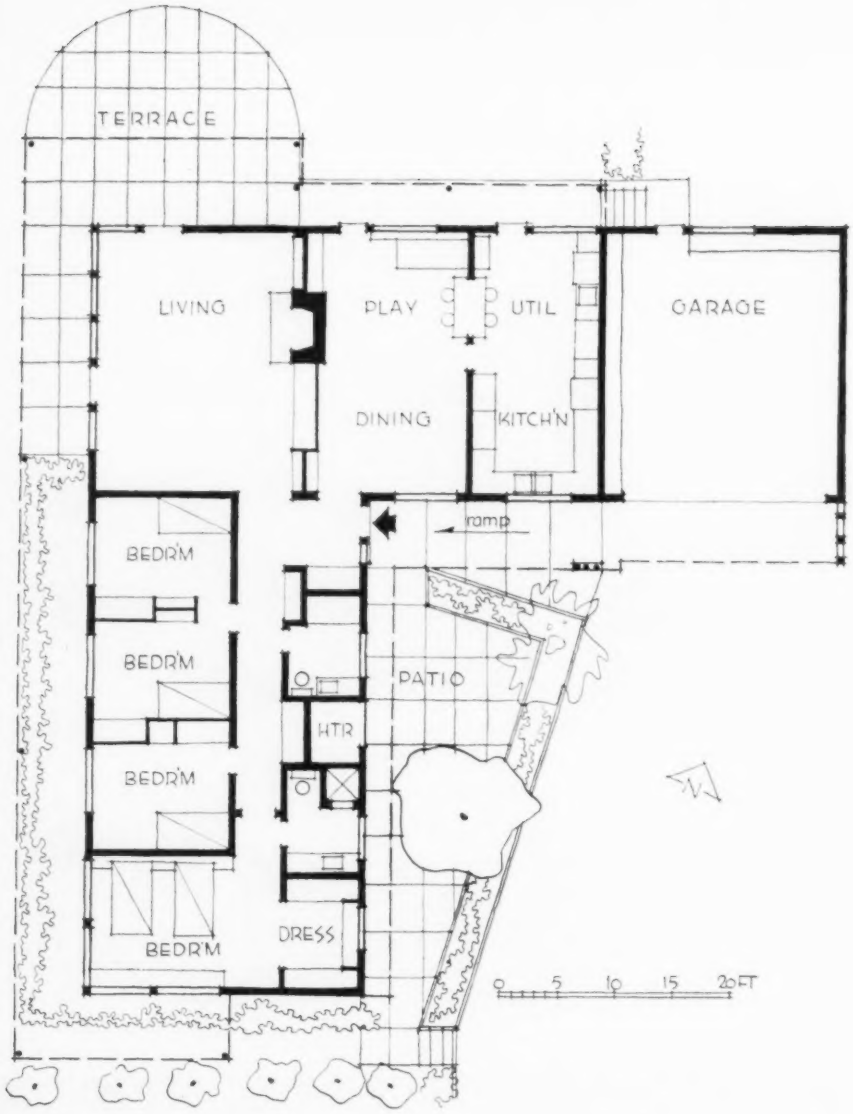
French Residence, Fillmore, Calif.; Chalfant Head, Architect

THE BASIC REQUIREMENT in the design of this house was to incorporate two separate living areas into the interior plan — one for the adults and one for the children. This need was met by placing a combination family dining and play room between the adult living room and the kitchen. Supervision of the play area from both kitchen and living room is possible due to wall openings between the rooms, as seen in photos on following pages.

The house is set on a sloping plot in mountain foothills, and entry is made from a paved ramp leading from the motor court, which is slightly higher in level. A patio in the front at floor level is afforded privacy from the road through various high plantings along a low wall. Built on a modular system, the house rests on a concrete slab foundation. Exterior finish is natural finished redwood with yellow trim. Roof is built-up composition topped with heat-deflecting white gravel. Heating is by radiant panel system with copper tubes embedded in slab. Photos on these pages depict slanting driveway from the road above, sheltered ramp to entry and various other exterior views of house. Relation of house to irregular shaped plot is indicated at right.



How harmonious living for families with children can be achieved through careful planning. Such an example is this house with a centrally located "family room" for supervised play and dining



FRENCH RESIDENCE

A house need not be large and portentous to accommodate both adults and children in peaceful and uncluttered surroundings.

A) *Adult living room with pass-through to "family room" for simplified entertaining has built-in cabinet wall containing radio-phonograph and loudspeaker above.* **B)** *Master bedroom is at far end of bedroom wing, affording privacy and quiet to adult members of family; has built-in desk, book-cases and trays below sliding wood casements, found throughout house.* **C)** *Kitchen is adjacent to children's play area and is well lighted—both naturally and artificially.* **D)** *Snack center is conveniently located between kitchen and play area.* **E)** *View of play space and main dining area from snack bar shows spaciousness of "family room." Section of living room seen at pass-through on opposite cabinet wall*

A

B

C

Robert C. Cleveland

D

E

CANTILEVERED DECK ADDS LIVING SPACE

Residence for Mr. and Mrs. H. E. Lunken
Cincinnati, Ohio
Carl A. Strauss, Architect
Henry Fletcher Kenney, Landscape Architect

WHILE this site's sharp hillside slope presented building difficulties, a view of the Ohio River and convenience to downtown Cincinnati determined its selection. Maximum advantage of the view is taken by the living and dining rooms' south wall of glass and by the cantilevered deck which runs the entire length of the house. To avoid a steeply-graded driveway, the carport was built at a higher level than the house; a flight of steps from the carport leads down to the main living floor. (See plan on page 158.)

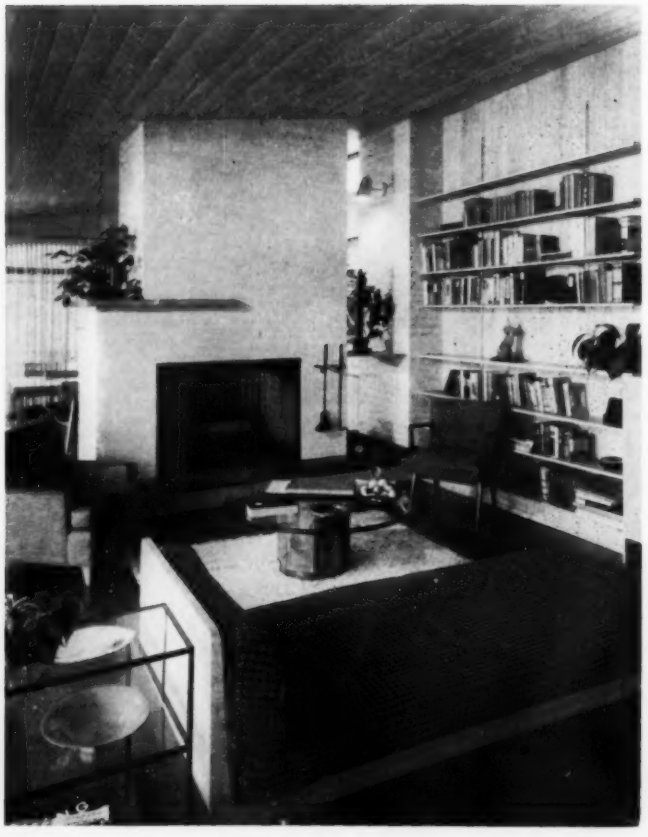
In the living-dining area, walls and ceilings are 3/8-in. ash panelling, fireplace is painted brick, and floors are cork. The screened-in porch has a canvas-deck floor, while asphalt tile is used for floors throughout the service area. The maid's room and bath in this section are also cantilevered, since a sewer directly beneath made the use of footing walls impossible.

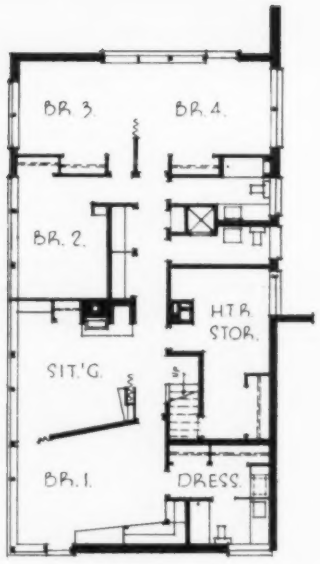
On the lower floor, deck acts as a sunshade for the south side of the house; master bedroom opens to terrace. Floors on this level are also cork; walls are painted plaster. Ceilings of acoustic tile are used in the hall, children's rooms and baths.

House is steel frame and wood joist construction: upper floor covered with vertical, gray-stained redwood boards. Rear walls, which act as retaining walls, are reinforced concrete, while front wall is brick and glass. Roof is built-up tongue and groove. A 7½-ton unit provides air conditioning.

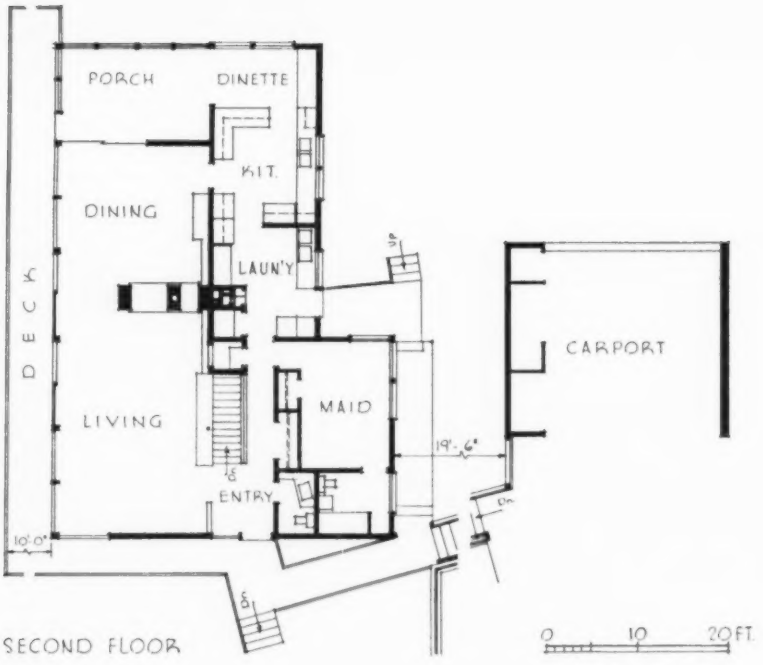
Bill Hedrich, Hedrich-Blessing

Left: sliding steel frame doors form part of glass wall, open on 10-ft deck. Below, left: radio-record-book cabinet also acts as stair railing. Below, right: two-way fireplace separates living and dining areas





FIRST FLOOR



SECOND FLOOR

LUNKEN HOUSE

Bill Hedrich, Hedrich-Blessing

Above: children's rooms are divided by folding wall, have outside door to play yard. Above, right: sitting room has folding partitions to hall and master bedroom, can be used as a guest room. Right: kitchen cabinets are stained birch; pass-through counter serves dinette

ARCHITECTURAL INTERIORS

Design | Details | Materials | Equipment

Gottscho-Schleisner

HOW ONE SPACE BECAME FOUR

Showroom and Offices for "Scarves by Vera," New York

Marcel Breuer, Architect

IN THIS DEFTLY HANDLED ALTERATION, a central problem was to provide a showroom for women's scarves where buyers from rival stores could be accommodated simultaneously with the proper degree of privacy. In addition, the program called for two private offices and a general office — all to be crammed into an area 37 by 42 and to be ready for business within two months!

A major design question was how to handle the bulky existing column poised slightly off center in the main space. This difficulty was transformed into an asset by girding the shaft with the showroom's most unusual and attractive feature: a display case unit that reaches out four fins to define four separate sales areas. This is accomplished without destroying the unity of the showroom volume. (Detail on page 164.) The four-part division is further augmented by treating each of the enclosing walls in a different fashion: one is draped in gray flannel, another painted electric blue, a third

Gottscho-Schleisner

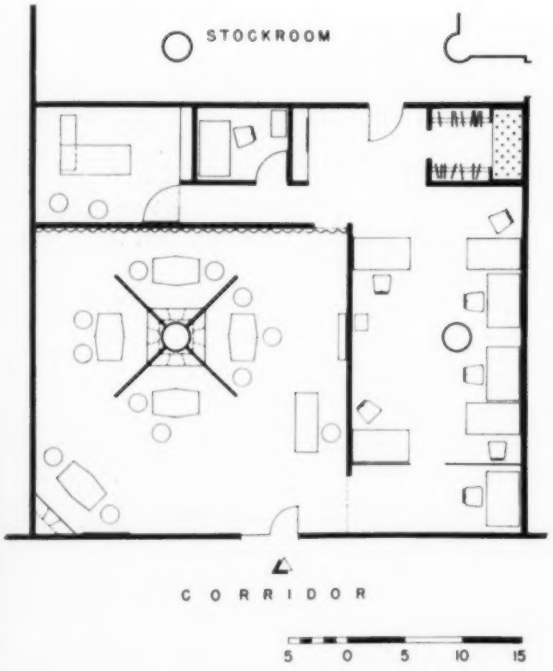
covered by a photo mural, while the fourth is faced with sheet cork upon which ordinary bottle corks are cemented in a regular pattern which sets up an interesting decorative shadow rhythm. (Detail on page 163.)

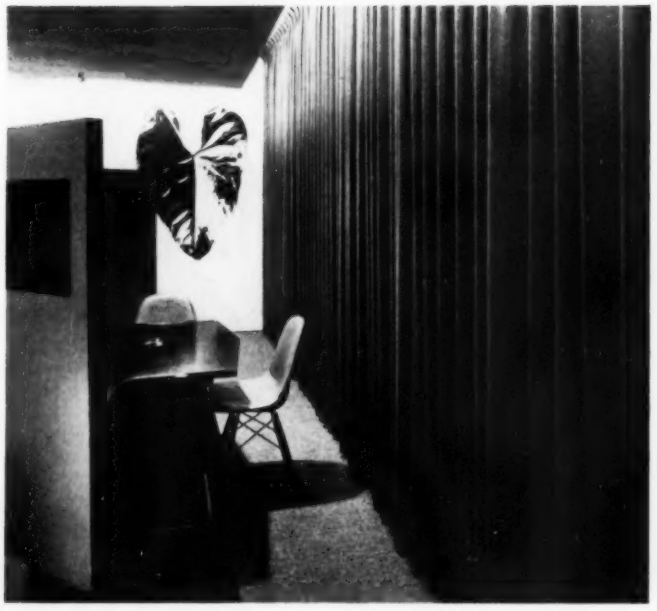
Each sales station contains a table and chairs: the tables, architect-designed, consist of a black lacquered 1⅛-in. plywood top supported by a welded frame of ⅝-in. square steel bars painted gray; the chairs are the newest Eames design, leather covered.

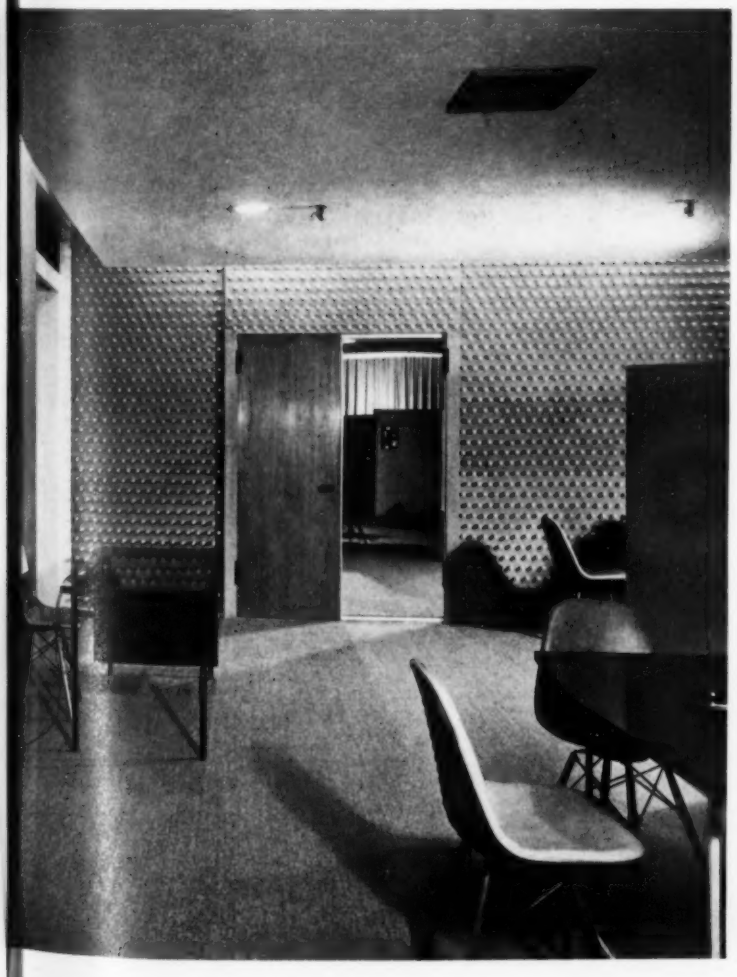
The acoustical ceiling is suspended 3 ft below the existing one to bring it down to an 8 ft 6 in. height for good scale, and at the same time provide room for ducts and recessed lighting fixtures. The ceiling terminates 14 in. away from the walls, both for visual separation and to yield space for concealed peripheral lighting. The architect's conception for lighting, i.e., the strong texture light on all walls which spills enough into the room for a soft over-all effect, supplemented by downlights above the tables, has proved to be extremely successful. (Detail on page 163.)

In the office spaces, an economical and attractive new ceiling consists of an open framework of 2 by 6s painted white which contains standard fluorescent troffers arranged in a staggered pattern. Ducts, pipes and the old ceiling over are painted dark gray, creating the illusion of a void above. (Detail on page 163.)

SHOWROOM FOR "SCARVES BY VERA"
MARCEL BREUER, ARCHITECT







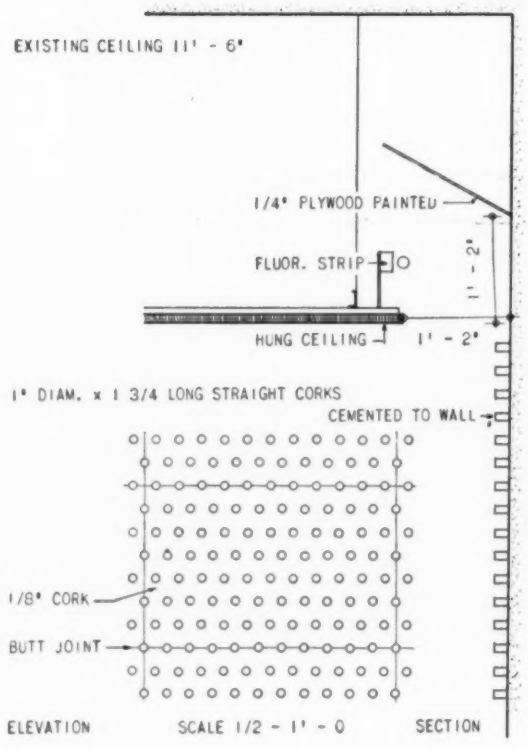
General view as one enters, left page, shows how four comparatively private sales stations have been created without sacrificing the spatial unity of the room. Entrance wall, next left, is cork covered—mirror on fixed door leaf adds depth and glitter. Rear wall, above, is draped with a medium gray wool flannel of the sort widely used for men's business suits

SHOWROOM FOR "SCARVES BY VERA"
MARCEL BREUER, ARCHITECT

Gotlieb-Schleisner

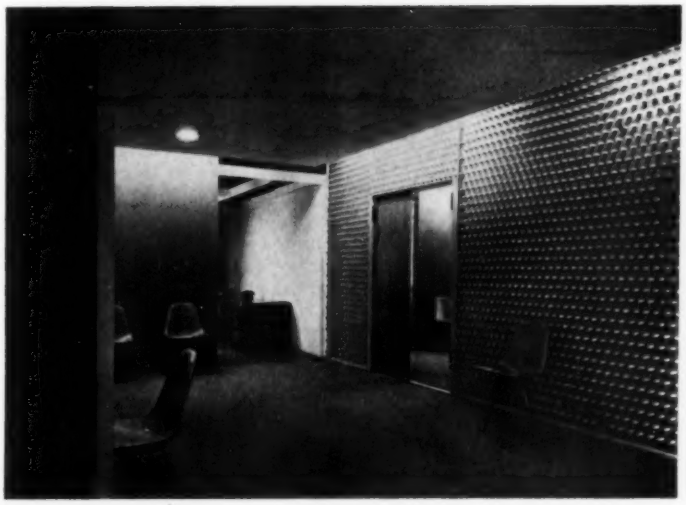
The photo-mural wall was designed by Herbert Matter, who determined that black and white would be most effective in relation to the other wall treatments. The view above reveals its scale and effect in the room; the montage at left shows the entire panel. The leaf is a favorite design motif of the owner-designer, Vera, and her leaf designs have been perennial best sellers

Drawing by Tom Ballenger

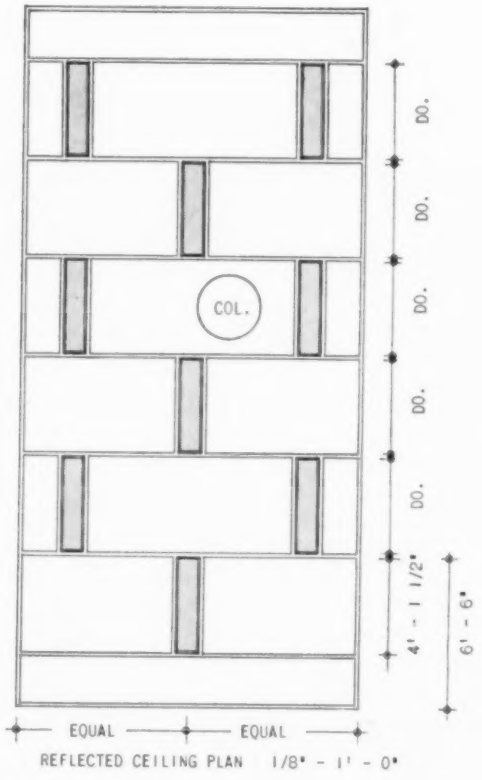


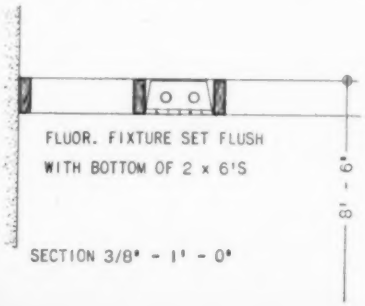
Drafting by Mogens Leth

Gottscho-Schleisner



DETAIL OF CORK WALL TREATMENT AND CONCEALED PERIMETER LIGHTING



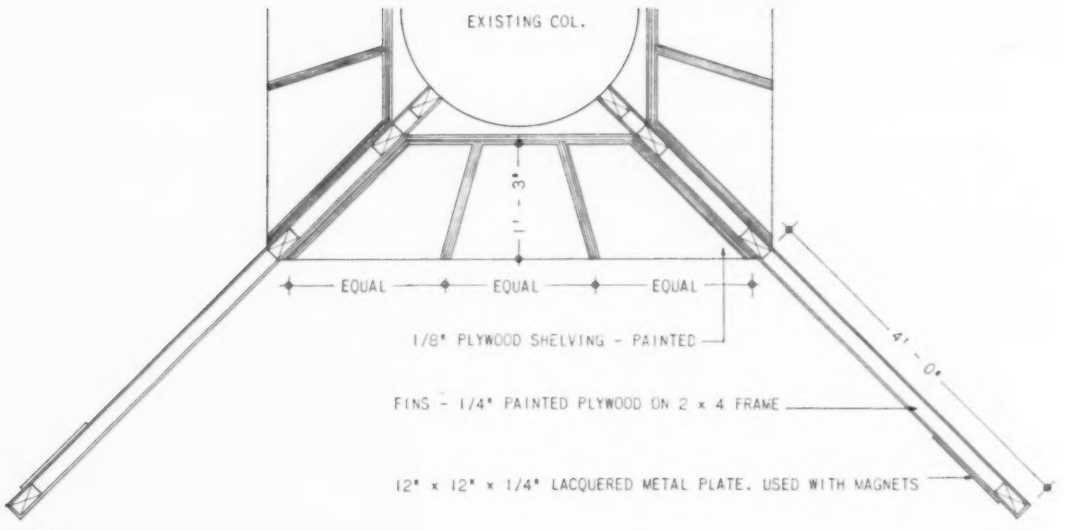


DETAIL OF OPEN CEILING AND LIGHTING PLAN FOR OFFICE AREA

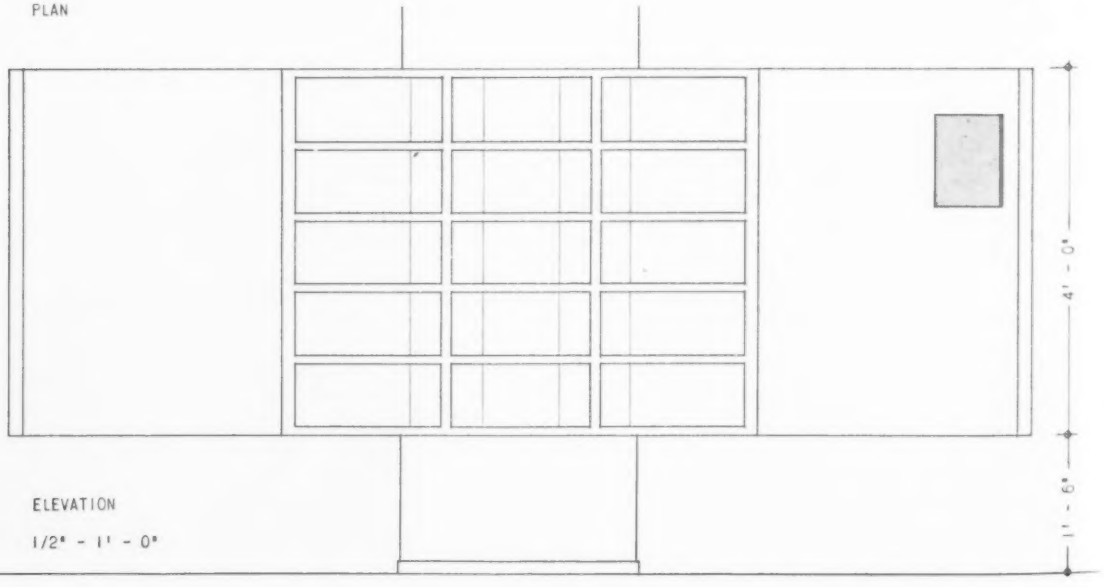
Gottscho-Schleisner

SHOWROOM FOR "SCARVES BY VERA"
MARCEL BREUER, ARCHITECT

DETAIL OF FOUR PART DISPLAY CASE UNIT


EXISTING COL.
1' - 3"
EQUAL
EQUAL
EQUAL
1/8" PLYWOOD SHELVING - PAINTED
4' - 0"
FINS - 1/4" PAINTED PLYWOOD ON 2 x 4 FRAME
12" x 12" x 1/4" LACQUERED METAL PLATE, USED WITH MAGNETS

PLAN



ELEVATION

1/2" - 1' - 0"

Drafting by Mogens Leth

HOSPITAL BUILDING TYPES STUDIES IN ARCHITECTURAL RECORD

Hospitals	July 1937	Elements of the General Hospital	June, July, Aug. 1946
Chronic Hospitals	Aug. 1938	Hospitals	June 1947
Hospitals	Dec. 1939	Type Plans for the General Hospital	Jan. 1948
Health Centers	Sept. 1940	Hospitals	May 1949
Hospitals	Aug. 1941	Hospitals	Feb. 1950
Hospitals in Wartime	Aug. 1942	Mental Hospitals	Oct. 1950
Hospitals	May 1943	Tuberculosis Hospitals	Apr. 1951
The General Hospital	Aug 1944	Hospitals and Health Centers	Oct. 1951
Coordinated Hospital Service Plan	Aug. 1945	Revised Elements of the General Hospital	Apr. 1952
		Hill-Burton Hospitals	Oct. 1952

BOOKS: "Psychiatric Sections in General Hospitals," by Paul Haun, M.D.

FORTHCOMING: "Design and Construction of General Hospitals," by U.S. Public Health Service, published jointly by ARCHITECTURAL RECORD and *The Modern Hospital*.

ARCHITECTURAL RECORD'S BUILDING TYPES STUDY® NUMBER 195

HOSPITALS

ARCHITECTS who have not planned a hospital in the last half dozen years will find that the general hospital is almost a new type of building. So many forward strides have been made in concepts and functions and equipment of hospitals, so much new study has been given to hospital problems, that it might add up to something frightening.

This particular Building Types Study is especially addressed to architects starting afresh in today's world of hospital design, though the study includes five hospital projects worthy of study by the most hardened of old regulars. It begins (next page) with an article on the opportunities in the field, with counsel for the architect who has not followed developments but is anxious to start.

Then follows a discussion of what amounts to the central problem of hospital planning — circulation. It is the relationships of departments to each other, the traffic routes for patients, doctors, nurses, service workers, for supplies, bedpans, food and medicines, that make an efficient, workable hospital, or a costly tangle of confusion. It is these matters which, largely, make a hospital a different assignment for the architect. It is here that he can stub his toe most painfully, or build a reputation.

Then follow five hospital projects especially selected for study of circulation problems. They are exceptionally good examples of planning for functions. They differ in size and locale, also in theory. They follow no pattern previously established, in fact they show some pioneering with respect to putting the several departments together. Among them they constitute an excellent demonstration of the theories of circulation stated more generally in the article mentioned above.

OPPORTUNITIES FOR ARCHITECTS IN HOSPITAL DESIGN

TEN YEARS AGO a new hospital, if it was well planned for its functions, was likely to be the work of a specialist in hospital design. A few dozen architectural firms did the important projects. It was difficult for the typical architectural office to plan a good hospital: there was so much specialized study to be done, very little literature to help. The architect new to the work had to undertake an individual research project, or else merely accept the program and recommendations of the administrator or the hospital consultant, and limit his own work to making the drawings.

Today it is feasible for any good architectural office to undertake a hospital commission; it is being done all over the land. The "hospital specialists" are still doing big business, but there are a great many more offices in that category than there were even five years ago, and scores of hospitals are being done by offices which never planned one before. Designing a workable hospital is still as complicated as it ever was; what is different now is that good planning information is readily available to all architects. The research study has not exactly been eliminated, but it has been greatly simplified. It is no longer in the realm of black magic.

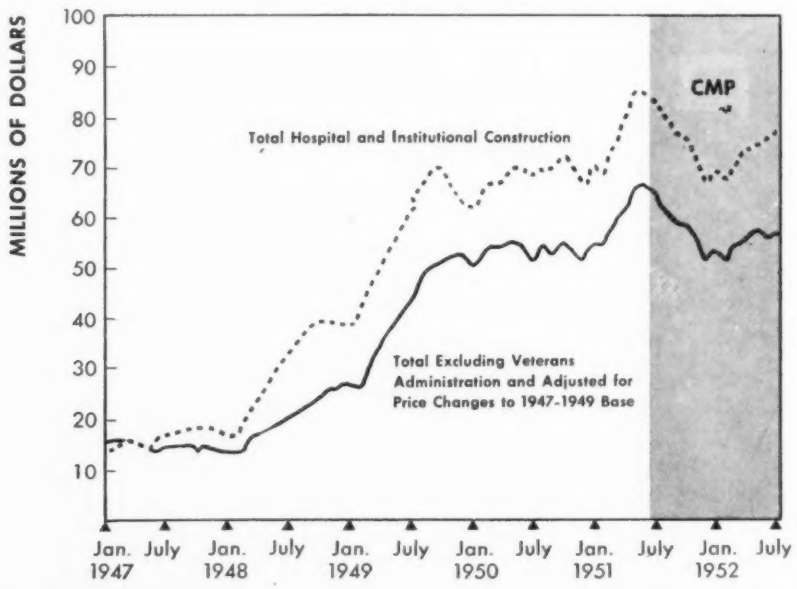
In the last half dozen years many architects have built up an imposing practice in hospitals. They were the ones who early realized the potentials in the Hill-Burton program, who dug assiduously into the mine of information built up by the Public Health Service Architectural Section and its regional offices, who developed contacts with state agencies administering the program, who made their hospitals demonstrations of good planning, and who profited therefrom.

There are still important opportunities. The great hospital program in this country, though it has been slowed somewhat by rising costs and limited federal funds, will go forward, is really only started. Late figures indicate that the hospital situation is roughly this: there are now 1,000,000 acceptable hospital beds in this country. Under the Hill-Burton program 90,000 have been put into service. But there is still a deficit of 950,000 beds.

In short, the country still has only about half the hospital beds that studies indicate it should have. And to date the Hill-Burton program has concentrated largely on general hospital beds, with first attention on rural communities; there are great areas of need still almost untouched — neuro-psychiatric, chronic, tuberculosis and public health centers.

The significant fact is that the country has started on a planned program of providing adequate health facilities and the end is not near. For the first time the need has been measured. The people have become conscious of the need; they have had some encouragement toward realization of the stated goals; they are going to get their hospitals. When such a snowball gets started one might even mistrust the measuring instruments used in totaling up the lack of beds. They are really based on rather arbitrary assumptions, such as one general hospital bed for each 220 persons, and may not

Dollar value of non-military hospital construction, 1947-52



Source: Bureau of Labor Statistics

prove too reliable as the country gets interested in good hospital care. In the mental field, for a single example, nobody would argue very loudly for older standards of numbers of beds needed. Who can say now what would constitute adequate hospital facilities?

The opportunities and informational aids for architects were not merely a casual result of this hospital boom. They were projected from the beginning and have been skillfully nursed. Marshall Shaffer and his staff in the Architectural Section, Hospital Facilities Division, U. S. Public Health Service, did missionary work of a high order. Sometimes it required some whipping of the architects themselves, in the early days, to push them into their share of organizational efforts in state agencies, to initiate hospital seminars, to bring about collaboration with hospital administration groups, to forward research and education.

It began actually during the war years, in those days of "postwar planning." The wartime Lanham Act developed some facts as to hospital needs in war-worker areas, showed the sad lack of system in the initiation of hospital construction. The American Hospital Association decided there should be a better way than to wait for some philanthropist to help start a hospital. It established the Commission on Hospital Care, which began the fact-gathering and started the move toward federal legislation. Their studies showed three facts: 1. the shortage of hospital beds, 2. the poor physical condition of the existing hospital plant, 3. the maldistribution of hospitals especially with respect to rural areas.

The culmination of it all was the passage of Public Law 725 (Hill-Burton Act) on August 13, 1946. For the first time the country was embarked on a systematic, nation-wide hospital construction program with financial aid from the federal government.

The act, drawn by Senators Taft and Hill, put the initiation of individual projects up to the states and territories. They are to study needs, plan an overall program for their area, raise two-thirds of the funds. This decentralization blocked the possibility of an operation by federal bureaucracy, put the planning in the hands of private architects. The federal part was essentially to put some minimum standards of hospital design under all the work, to assure wise spending of federal funds. The legislation has been so successful that it is being copied in other countries.

The architectural profession was active in the program from the start. The A.I.A. and its state and local chapters offered substantial help in the setting up of state agencies and starting the surveys of need. A.I.A. representatives shared in the work of establishing the standards of hospital planning and equipment, and have served on federal and state advisory councils. Architects generally have joined with the Public Health Service and the A.H.A. in sharing views and secrets in conventions and seminars. The years since the passage of the Act have witnessed a great educational movement in the interest of improved hospital design and the accommodation of rapidly changing medical techniques.

It has been the function of the Architectural Section of the Public Health Service to focus all of these educational efforts, to study with the medical and architectural professions all of the intricate parts of hospital design, to document the basic information, and to make it available to architects through several Building Types Studies in ARCHITECTURAL RECORD (see page 165) and in hospital magazines. It cannot be too frequently emphasized that this assembling and issuing of information is never arbitrary or forced. It is research data for architects, to be applied to individual designs in individual ways. No architect will find his building planned for him, neither will he have to conform to frozen patterns. He will be expected to submit his plans for examination against established standards, and he will find plenty of help available to him in any problems he may encounter along the way.

Such help is available first in the state agencies, which have technical men working for better planning. It will be found also in the regional offices of the U. S. Public Health Service, and in Washington where a large architectural and engineering staff is constantly reviewing plans and assembling every new data. The architect will find similar aid in the Octagon, or in the home office of the American Hospital Association in Chicago.

Hospital consultants have shared in the studies all along the way, and are available severally or individually for the planning of hospitals.

Architects still complain, and not without justice, that it is difficult to break into the hospital field. It is difficult; it is difficult to break into the school field; it is difficult to break into practice, period. Many cite, with sharp language, the list of hospital architects of the A.H.A. as a closed corporation of specialists who grab all the jobs. How does one become a hospital specialist, when you can't even join the fraternity without already being a specialist?

Well, they have a point there, but it is not as bad, or as closed, as it seems. Since the program started it has encompassed 1800 projects totaling $1,500,000,000. These buildings were not planned by a closed corporation of specialists. Many, in fact most, were small jobs done by local architects. Many more will be. The central fact is that it does not now require years of specialization to plan a good hospital (although the point is still argued).

There are opportunities ahead for any good architectural office willing to learn about hospital planning, to join in a really great movement to improve hospital design.

PLANNING THE HOSPITAL STARTS WITH CIRCULATION

Separate all departments, yet keep them all close together; separate types of traffic, yet save steps for everybody: that's all there is to hospital planning

By Emerson Goble

FOR THE ARCHITECT not already familiar with modern hospital planning, the principal subject for study will be circulation — the proper integration of the many departments so that different types of traffic through the building will be separated as much as possible, traffic routes will be short, and important functions protected against intrusion. Needless to say, the skill with which circulation is handled will determine the efficiency of the hospital for all of the years of its use. If nurses have to walk too far (according to hospital administrators all nurses are old and have varicose veins) curses will be heaped on the architect's name, day and night, for fifty years.

Principles of Planning

Protection of the patient (despite the nurses' beefing) is the primary principle of circulation schemes. Too much traffic in the nursing unit corridor will disturb the patient, will involve excessive risk of contamination, or at least of confused and inefficient care. Any unwanted traffic in the surgical suite means dilution of the effectiveness of aseptic technique. Assured protection against contamination is the very heart of good patient care, and is the basis of hospital planning.

Short traffic routes, with as much separation as is feasible, assist in assurance of asepsis. For another reason, however, they become the second principle of circulation; obviously short routes save steps for everybody concerned with hospital care. Nurses, doctors, patients, service and office personnel — all have a share in the patient's welfare. All must work fast at times, and all are subject to fatigue. Their steps take time and cost money, more money each year. Hospital planning is increasingly concerned with labor saving in all possible ramifications.

Separation of dissimilar activities is another principle, for the reasons stated and for other reasons. Separate the "clean" and "dirty" operations. Separate different types of patients. Separate quiet and noisy operations. Separate different types of traffic outside the building as well as inside. Separate pleasant and unpleasant functions. Separate types of workers.

Control is a fourth general objective. No matter how much control may be inherent in good separation, in good disposition of functions, there are places where control must be still more positive. So the nurses' station must involve some supervision of patients' corridors; the infants must be protected against germs brought in by visitors, or even by doctors; the surgical suite must be protected similarly. And so it goes.

Separate everything. Yet have everything close together. That's all there is to it.

If it begins to sound impossible, well, it is. Yet it is still possible to do very well or very poorly. Accordingly is the architect's reputation established. This article will state, as quickly as possible, the major factors in circulation, with reasons for the most urgent requirements. The individual hospital plans presented in the following pages will give practical demonstrations of the theories.

Separate Exterior Traffic

It is customary to start separating traffic before it even gets within the building; in fact it is necessary to separate it outside in order to do it inside. The key flow chart, Figure 1, offers a general guide to circulation lines in the building, and thus also to exterior traffic.

Usually there are separate entrances for these main traffic lines: 1) Inpatients and visitors; 2) Outpatients; 3) Emergency patients (or ambulance cases); 4) Supplies and fuel.

The main entrance would usually serve for ambulant inpatients arriving for admission, or leaving after their stay. They would proceed through main lobby to admitting desk, possibly with a stop at a social service office. Visitors would also use the main entrance, largely for reason of control of visitor traffic by the receptionist.

The main entrance can also be used by doctors, so that they may be clocked in or out, or possibly so that the records clerk may catch them for a task the doctors always seem to find onerous. On the other hand, doctors frequently prefer a separate entrance, so that they will

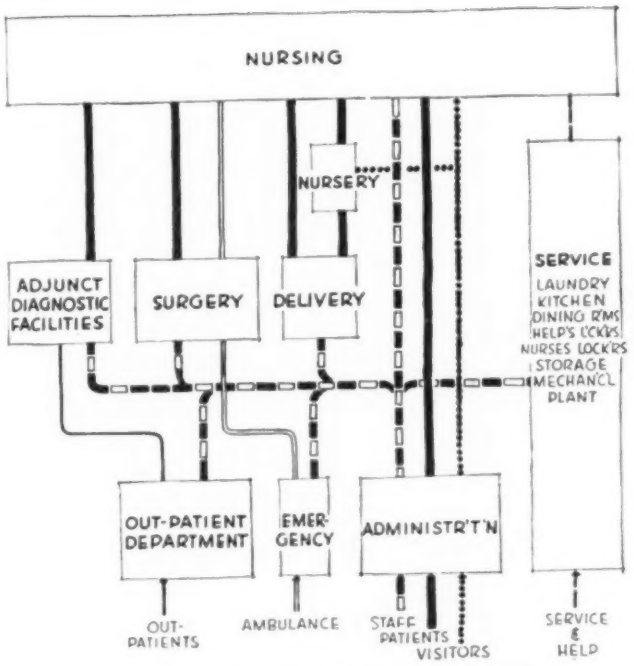


Figure 1: Key Flow Chart, Acute General Hospital

not be button-holed by visitors or relatives or just friends. Another consideration is that usually the doctors have a separate parking area, and another entrance may be much more convenient.

The ambulance or emergency entrance is presumed to be convenient to elevators for inpatients who must be brought in by ambulance or private car. The emergency entrance is principally intended, however, for real emergency cases, who might arrive in some unsightly condition and who would require instant attention in the emergency suite. The "emergency" patient might even be a drunk, or a criminal arriving with full escort. Also the emergency case might be a medically "dirty" patient, not to be taken any farther than necessary until he can be given some preparation.

This same entrance is usually designed also to offer an unobtrusive means of removing the dead.

A separate entrance is desirable for outpatients since any volume of them would soon confuse the main entrance and the departments nearby. Moreover, there is the need to control the movements of outpatients, to keep them out of principal corridors, to confine them to certain areas. Merely from the standpoint of unpleasantness it is desirable to shield the main hospital from a constant parade of sufferers coming and going.

Separate entrance for service and employees seems to have obvious advantages. An especial point is that deliveries are usually a fairly noisy operation, sometimes unpleasant in other respects, and should be isolated and screened as much as practicably possible.

Parking space is usually grouped roughly according to entrances. At the least there should be separate and convenient parking space for doctors, who should not be expected to fight a traffic jam at each visit. Perhaps hospital workers should have a separate parking area. Clearly any separation that can be arranged for parking areas will help to maintain separations of types of traffic both within and without the building.

Interior Traffic Streams

Figure 1, the key flow chart, shows the main streams of traffic within the hospital to and from principal departments. It does not, of course, show all of the comings and goings up and down these lanes; these are indicated in more detail in departmental charts. The key chart is reliable for indicating the major departmental separations, nevertheless, and this is of course the first step in traffic control.

Architects have developed notable ingenuity in schematics designed to control traffic. The cruciform plan is an old favorite, providing a central traffic and service core and a goodly number of cul de sac locations in the wings.

The T form is another favorite. Again there is a central core, with various medical departments isolated in bases of the T, floor by floor, and nursing units facing south in the top of the T.

Variations are found, literally by the dozen, with wings added on to isolate departments, particularly on the lower floors. Sometimes a wing is sent out, only to be folded back again against the building.

Double corridors have been extensively used, and often they serve to shorten horizontal travel in ingenious ways. There is one plan included in this study, page 187, with a triple corridor scheme, with the same objective.

Always the intent is to separate departments yet keep horizontal travel to a minimum. It is worth noting, and quite healthful, that "standard" schemes do not seem to do very well against the wide variety of individual conditions and sites. And against the ever-changing display of originality that architects have exhibited.

Nursing Department

As seen in Figure 2, the nursing unit corridor is really a traffic highway. The main streams indicated are endlessly repeated throughout the day and possibly the night. Obviously, then, any possible saving in steps can be multiplied many times over, especially for the nursing staff.

The first point, then, is the location of the nurses' station, as this is the starting and finishing line for

all their little footraces. Modern practice usually puts their station roughly in the center of their group of patients. It is generally assumed that the maximum travel distance should be about 80 ft. This almost automatically places a reasonable limit of 25 to 30 patients in one nursing unit, though practice varies in this respect.

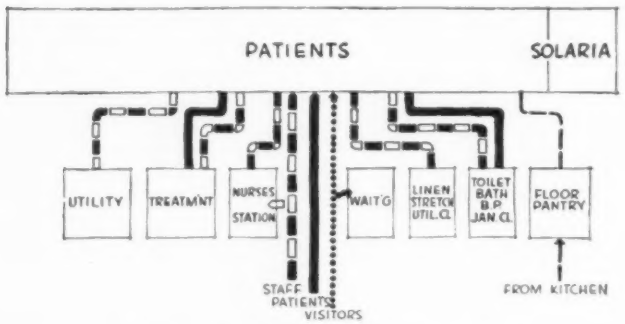


Figure 2: Nursing Department Flow Chart

There is some clash of objectives in the placing of the nurses' station, as the central location, it is argued, might weaken the element of control. The central location within the nursing unit might not be quite so good, as to control, as some other location nearer the elevators or stairs where the nurse can keep a weather eye out for the unauthorized visitor or the wandering employee, or can assume the role of policeman as may be required.

Present thinking nevertheless tends in the direction of the central location, where nurses' patient duties are most readily and most quickly performed. The control, it is said, is tenuous at best, for the nurses are usually busy with running for the patients, and cannot always stand with a billy club in their hand. That is, control of the exceptional incident would be tenuous — control of most matters, such as visitors, would be almost automatic anyway, since there is so much going on through most hours that anything untoward would be quickly spotted.

Where the control argument takes on more substance is in the matter of night hours. Then there might be but a single nurse, and she might even have to handle two different nursing units. This consideration might be the prevailing one, depending on such factors as size of nursing units, their relation to each other, or any of many layout factors affecting the need for control.

Elements that group themselves around the nurses' station are utility rooms, baths, floor pantries, drug cabinets, possibly a flower room, maybe also a treatment room. The location and convenience of these facilities can make the nurses' tasks relatively easy or very difficult. If there is one bedpan closet poorly located, this error alone can drive the nurses to distraction. Good practice puts two bedpan closets in each nursing unit, each centrally located in one half of the unit.

Recent practice also is to put private toilets in as many patient rooms as possible. When the patient is confined to bed, the nurse need go no farther than the private toilet with the bedpan. Or, with early ambulation so much stressed, the nurse may be needed much less frequently.

There are other step-saving devices coming into more general use. An important one is two-way communication between patient and nurse, so that the nurse is at least saved the trip down the hall just to learn the patient's want — maybe she can bring the aspirin tablet with her on the first trip. Many times she will not have to make the trip at all.

Surgical Suite

It is important that the operating suite be completely isolated from the rest of the hospital, and so located that there will be no traffic through it. In a large hospital it might occupy a separate floor; in a smaller one it is usually placed at the end of a wing. Operating rooms and associated areas must, of course, be protected against unwanted persons, mostly to minimize the risk of contamination, but also to prevent interruptions and confusion.

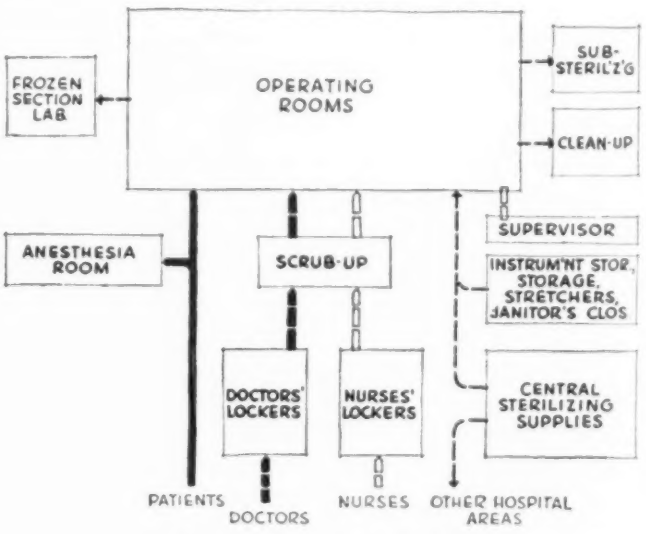


Figure 3: Surgery Flow Chart

The suite ought to be close to elevators, or to the surgical nursing unit. It has some relationship also to the emergency department, as emergency cases might require major operating procedures. Or, in case of a general emergency (railroad wreck or fire) the whole

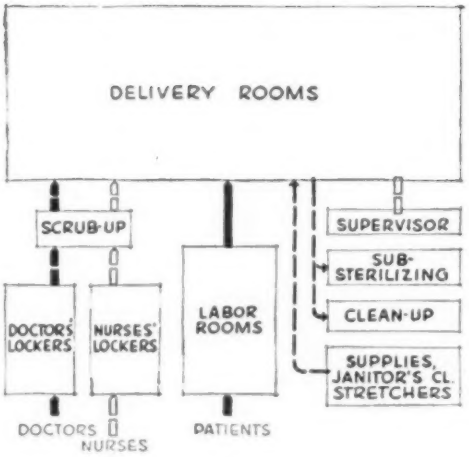


Figure 4: Obstetrics Department

operating department might be taken over temporarily for emergency use.

The surgical suite also has an obvious relationship to the x-ray department. The fracture room-x-ray relationship is especially close, and radiographic work is done also in cystoscopy, though portable x-ray equipment might solve this problem. The fracture room, incidentally, is sometimes placed in the emergency suite, especially if a large volume of accident cases may be expected, but it is usually considered part of the operating department and so placed.

Modern practice tries to put the central sterilizing department either adjacent to or within the surgical suite. This arrangement naturally makes it convenient to supply the sterile packs and so on needed in the operating rooms with minimum risk of contamination after sterilizing. It also puts the sterilizing operation more or less under control of the surgical nursing staff. In many hospitals this staff actually does the sterilizing in free time when operations are not in progress. The sterilizing department would be arranged also, of course, to dispense supplies to the rest of the hospital without involving outside traffic within the surgical department itself.

Figure 3 is useful in showing the main elements of the operating department and their relationships to each other.

Obstetrics Department

The delivery suite is very much like the operating department, and the same general considerations of location and control hold here. The obstetrical suite is given a similar location, though its primary relationship is to the maternity nursing unit, not to emergency or x-ray facilities.

Special consideration should be given to separating the suite from the nursery itself, since the newborn infants attract a great deal of visitor traffic. On the contrary, however, a long distance means that much more risk in the moving of newborn from delivery suite to nursery. The separation, then, should ideally be a matter of control, not distance.

Some of the newer hospital plans show the delivery suite actually adjacent to the surgical department, especially in small buildings. There are obvious advantages, and some disadvantages. The two departments require the same isolation, the same type of nursing service, same cleaning, air conditioning, sterile supplies and so on. Nevertheless, intertraffic between the two is undesirable, and the possibility of cross-contamination is ever-present. If the two departments are nearby, then, especially good control is required.

Figure 4 shows the units of the delivery department and their interrelationships.

Nurseries

The nursery is designed to keep traffic to an absolute minimum, for nothing worries the hospital administrator quite as much as the possibility of an epidemic in the nursery, especially the dread infant diarrhea. The nursery is closed off from the corridor, entered only through the nurse's work room. The usual arrangement permits only the nurse — not even the doctor — to enter the nursery itself. The baby is taken by the nurse to the examination room, off the work room, for the doctor.

Frequently each nursery is limited to eight bassinets, representing the number of babies a single nurse can handle. Thus each infant is normally in contact with only one person; that is, in the nursery. The baby is taken to the mother, of course, and that necessity imposes some requirements on the location of the nursery.

It should be centrally located within the maternity nursing unit, to keep distances as short as possible and again minimize risk of infection. The central location is good also to keep down delivery routes for linen, bottles and medication.

Adjunct Diagnostic and Treatment Facilities

In general all of adjunct diagnostic facilities have about the same traffic conditions, and the same type of uses. So they are grouped together.

From the circulation standpoint the main point is that diagnostic facilities are used both by inpatients and outpatients. The natural location, then, is on the street floor, for convenience of outpatients, but near elevators or main corridor for convenience of inpatients and staff (see Figures 5 and 6).

As previously mentioned, the outpatient department

usually has a separate entrance and waiting room, to keep the department self-contained, and to keep outpatients from wandering about the hospital. Thus it is desirable, on the inside, to maintain some isolation of the diagnostic facilities. Access to the department by inpatients, therefore, while it should be convenient, should be susceptible to positive control, not for the hospital patients themselves but for the outpatients.

In some hospitals there may be a public health department, which will have use for the diagnostic facilities, for their own patients, and this relationship may

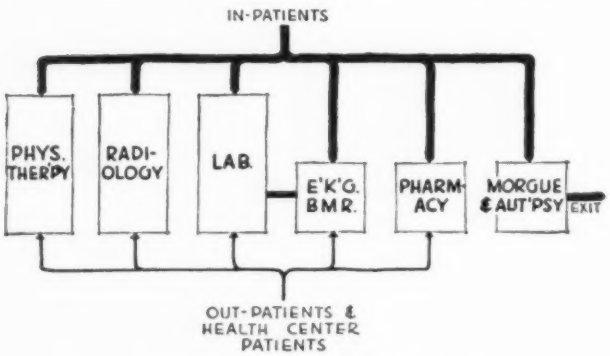


Figure 5: Adjunct Diagnostic Facilities

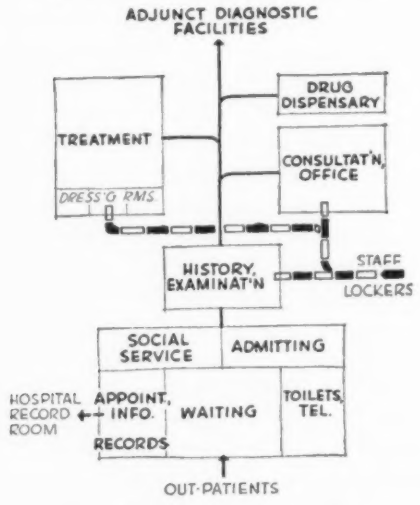


Figure 6: Outpatient Department

have to be separately planned. There may occasionally also be doctors' offices in connection with the hospital, and the doctors will have use for diagnostic facilities. Even if the hospital does not maintain a normal outpatient department, there will be some use of these facilities by doctors attached to the hospital and by their patients needing x-ray diagnosis or treatment.

It is worth noting that modern medicine places increasing reliance on diagnostic and laboratory procedures. There are some staffing problems in these departments, and some hospital administrators don't particularly like them, especially in rural areas. But in just those areas the diagnostic facilities may be most appreciated; they might be necessary to induce young doctors to practice there, and thus they are very important to the hospital's community service. The point is that it is not safe to plan on the basis of having no outpatient department, or of keeping the diagnostic facilities to a minimum.

Administration Department

The administrative offices are grouped in the area adjoining the main lobby and main entrance (see Figure 7). Certain sub-groupings should be considered, so that each unit within a sub-group will be conveniently located with reference to each other unit in that sub-group.

For example, the administrator's office, the director of nurses' office, the general business offices, the secretary's office and the toilet facilities for the administrative staff form one sub-group of the administrative facilities, each unit of which should be convenient to each other unit.

Other sub-groups include: the main lobby and waiting room, the information desk, the cashier's window alcove and the public toilets; the admitting office, the social service office; the medical record room and that section of the staff room intended for the record study; and the staff room, locker room, library and conference or board room.

Many hospitals have found it desirable to provide a separate small retiring room in this area for the use of distraught relatives.

The medical record room should be accessible from the admitting office and the outpatient department. It may well adjoin and control the entrance to the staff locker room, and should have convenient access to the inactive record storage room below, possibly by a spiral staircase. Space should be available either in the record room or in the staff room for staff members to use while completing their medical records and for reviewing microfilmed records if that system is contemplated. In larger hospitals it may be necessary to provide a pneumatic tube or other device to convey records to and from the nurses' stations, admitting room, outpatient department and emergency room.

In the larger hospitals, a separate library and conference room should be provided. It is advantageous if this can adjoin the medical record room, thus serving the double purpose of furnishing a control for the library books and space for staff members to consult records without removing them from the control of the medical record librarian. If interns are to be trained at the hospi-

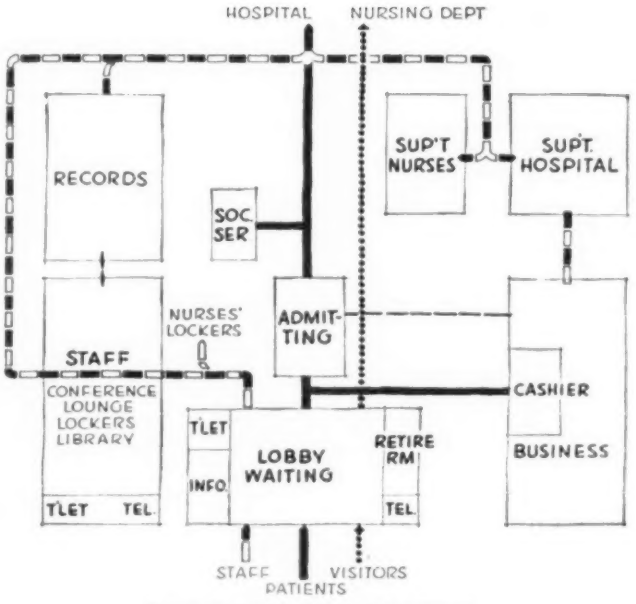


Figure 7: Administration Department

tal, a library is required. The library should have adequate shelving and provisions for unbound periodicals. In smaller hospitals a combination board room, staff conference room and medical library may be arranged in conjunction with the administrator's office by the use of accordion doors, thus enabling the total space to be made available for large meetings.

Service Departments

Figure 8 outlines the flow of activities in the kitchen and other service departments. These are not too different from similar facilities in other types of buildings, but there are a few notable points in hospital operation.

One is to maintain if possible a more than normal isolation of these areas, largely because there is much noisy bustle about them which would disturb the quiet of a hospital or weaken the concentration of certain departments which at times do critical things. A basement location is frequently given them, yet it is often pointed out that a great many people work in these departments, or eat in staff dining rooms, and these busy and underpaid souls should not be asked to struggle in basement space. A change of grade is useful in this problem, giving ground level delivery access and windows for dining rooms. A principle is to point delivery entrances, say, to the rear — at any rate in the opposite direction from the patients' rooms — to screen the less pleasant, noisier activities.

A complicating factor as to kitchens is that food must be delivered to patients in their rooms, so that the food operation must reach into most corners of the building. This is usually accomplished by a tray service system, with individually prepared trays or bulk food sent from kitchen to nursing units. Floor pantries may or may not enter into the operation, usually not for regular meals. But they serve for bedtime or between-meal snacks or for certain peculiar dietary situations.

Storage problems are always harassing in a hospital. It's a chronic complaint that there is never enough storage area, and that it's never in the right place. Just the same, the central storage system is preferred, for reasons of control. A hospital stores an infinite variety of commodities, from foods to furniture. Some of it is quite valuable, or at least very subject to disappearance, so control is a strong need. Storage problems might be said to compare with those of a hotel, and so require more than ordinary attention in planning.

More Detail

This has been the quickest possible introduction to the circulation problems involved in hospital schematics.

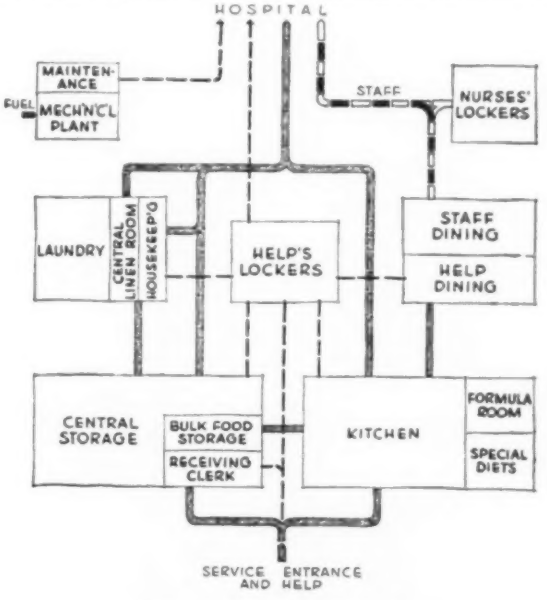
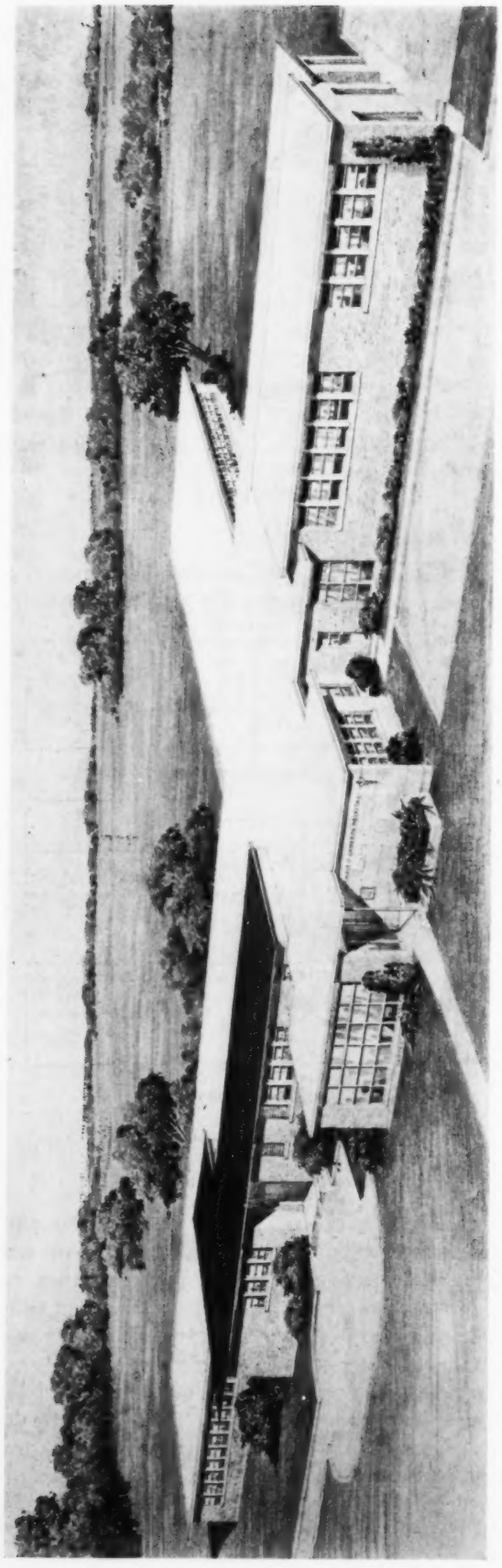


Figure 8: Service Department

If the review seems to deal mainly in principles, they are principles most frequently neglected. Those who have studied hundreds of hospital plans say they are violated by experts as well as beginners, and that when you find a bad hospital scheme the trouble usually goes back to these basic worries about circulation.

They have been treated in considerably more detail in various publications of the U. S. Public Health Service. The more or less official Health Service text has been revised and will be issued soon in book form published jointly by Architectural Record and *The Modern Hospital*.



ONE-STORY HOSPITAL

New cruciform scheme relates surgical to emergency to obstetrical, yet separates all. Nurses' stations both for step-saving and control. Good location for sterilizing

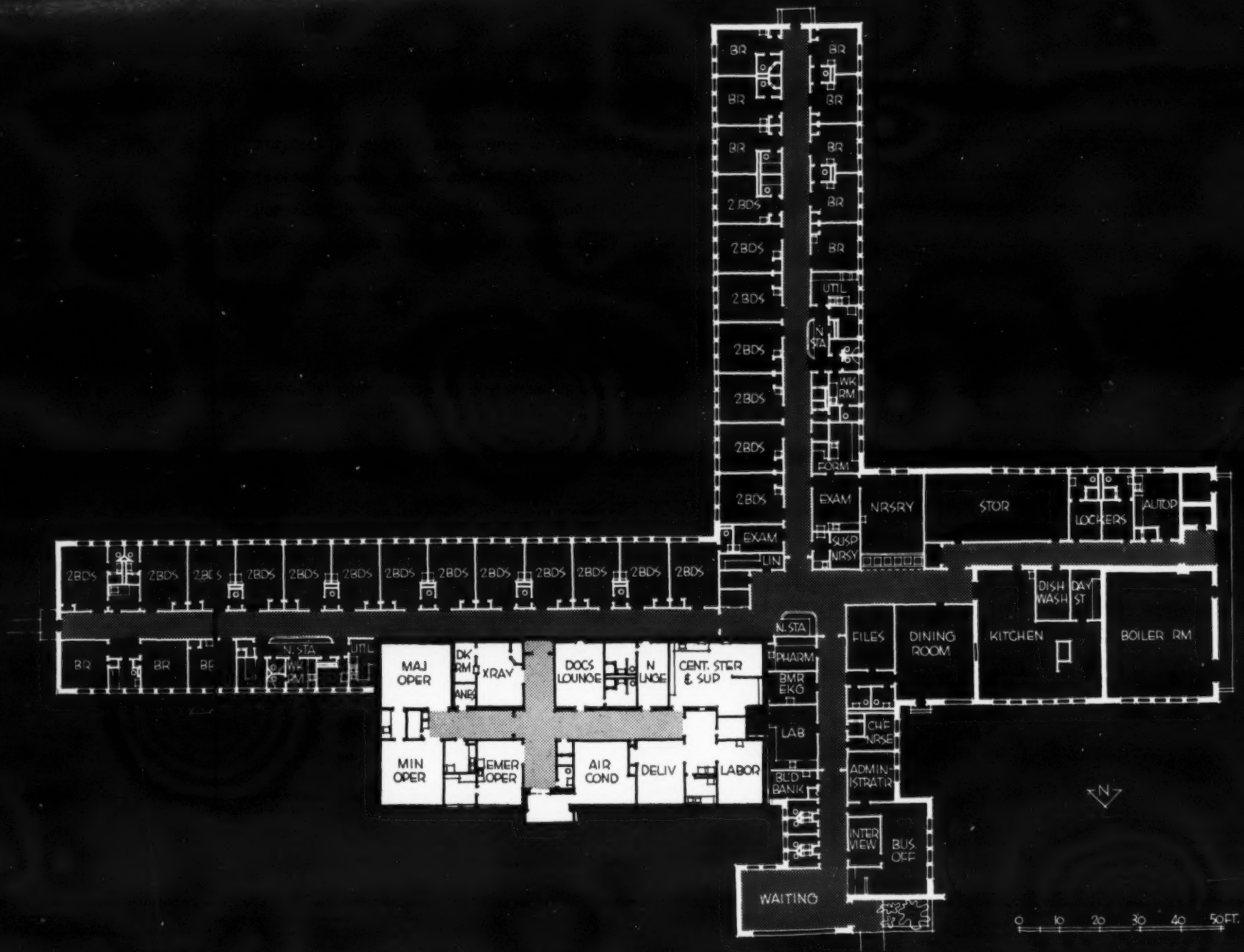
West Calcasieu-Cameron Hospital, Sulphur, La.
Ricciuti, Stoffle and Associates, Architects

A NOVEL VARIATION of the cruciform plan, this hospital is an excellent demonstration of the principle of having everything separated yet close together. Perhaps most interesting is the placement of surgical suite, obstetrical department and emergency together in one protected location. X-ray is also in this portion, and the arrangement of central sterilizing is particularly convenient, both to these three departments and to the rest of the hospital. Operating is closely related to emergency, which is always good, but especially desired here since industrial accidents are anticipated. Yet operating can be closed off against contamination from emergency suite. Emergency bears a similar relationship to obstetrical suite. Notice that x-ray is placed with emergency and operating, rather than, as usually, with adjunct facilities; any really critical need for x-ray is more likely to arise in connection with emergency or operating than with adjunct facilities.

The nurses' stations are also interesting. Main nurses' stations are placed centrally within each nursing unit, to keep the nurses' traffic routes as short as possible. For the problem of control during night hours there is an auxiliary nurses' station at the center of the cross, so that one night nurse can control both units.

Adjunct facilities (blood bank, pharmacy, laboratory, etc.) are placed for convenient use as an out-patient department, but are also central as far as the rest of the hospital.

In general, the principle of the scheme is short routes for highly paid personnel, less convenience for others.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HOSPITAL PLANNED FOR LOW OPERATING COSTS

Exceptionally good schematics—logical grouping of departments—short travel distances—two-direction expansibility

West Contra Costa Hospital, Richmond, Calif. Stone & Mulloy, Architects, and S. P. Marraccini, Architect

John Block

HOSPITALS

ALTHOUGH THIS GROUP OF ARCHITECTS has done many hospitals under the Hill-Burton program, they cite this one as their best with respect to circulation problems. Lower floors, heavy with facilities, are basically in the cruciform scheme, though the cross is so fattened as to be hardly recognizable. Upper floors use a sort of squashed Z form, with wings offset to shorten nurses' walking distances. Medical facilities on the first floor can expand horizontally; additional nursing units can be added by vertical expansion. With a rated capacity of 165 beds now, the hospital has operating and medical departments ready for addition of 100 beds before other changes need be contemplated.

First floor is especially worthy of study for its realization of the objective of separating everything yet keeping it all close together. Notice how well the several departments — administration, central sterilizing and supply, surgery, emergency, x-ray and adjunct facilities (including physical therapy) — are separately defined and isolated. Still, following the theory of the cruciform scheme, all gather closely about the center.

Especially good is the enlarged arm of the cross including emergency, x-ray and adjunct facilities. The connected double corridor permits each department to be closely controlled while giving access from, say, adjunct facilities to x-ray, or from x-ray to emergency. X-ray is also close to the operating department, and all facilities are within easy reach of elevators to upper floors for inpatient use. Emergency is nicely developed — across the corridor from x-ray and adjacent to surgery, yet with plenty of barriers against contamination.

The same trick of the connected double corridor, in H form, keeps the operating department compact, with short distances and complete isolation. Surgery connects directly with central sterilizing, also with elevators.

Obstetrical is deliberately underplayed here, but can be expanded outward if the need develops. Delivery rooms, at the far location of the Z, are directly on the maternity floor but well isolated. The nursery, at the other far location, is similarly isolated, yet still very close to the nurses' station.

The same offset wing scheme is used for typical nursing unit floors. This places nurses' station directly opposite elevators, also central with respect to the patients' rooms. The nurses have all their utilities grouped in the center, with again a connecting corridor saving steps.

The architects were asked to plan this hospital for low operating costs, and nothing could contribute to this end like the circulation scheme here developed, to save time for critically busy personnel.

Surgery adjacent to central sterilizing

Also near emergency

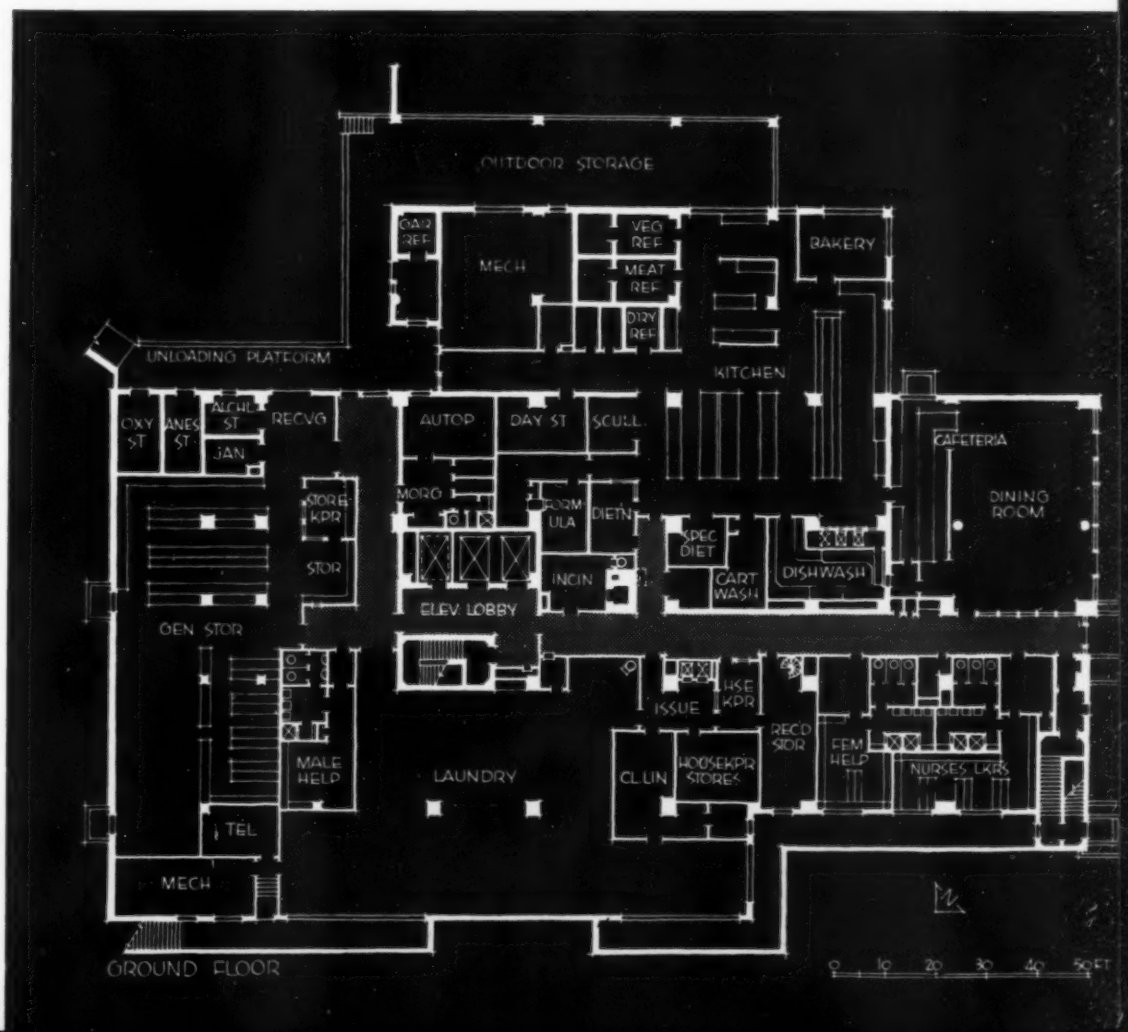
Emergency near x-ray

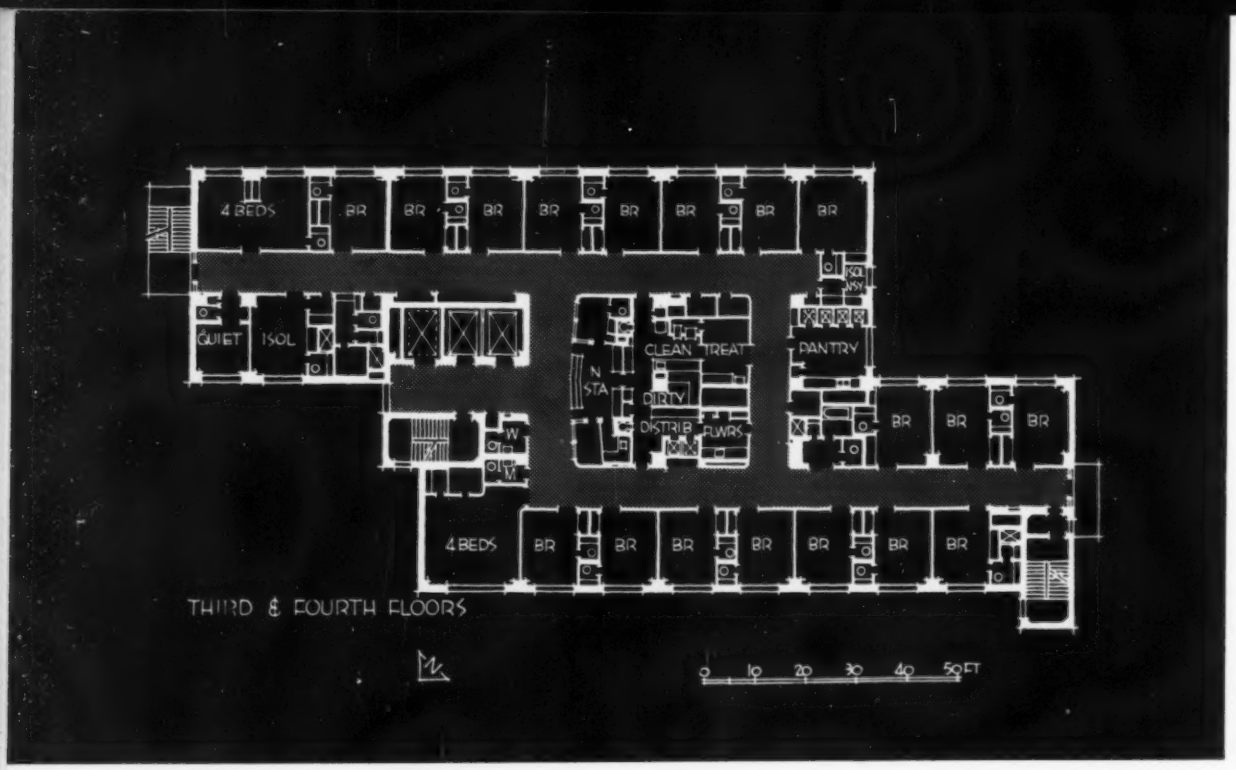
X-ray near outpatient

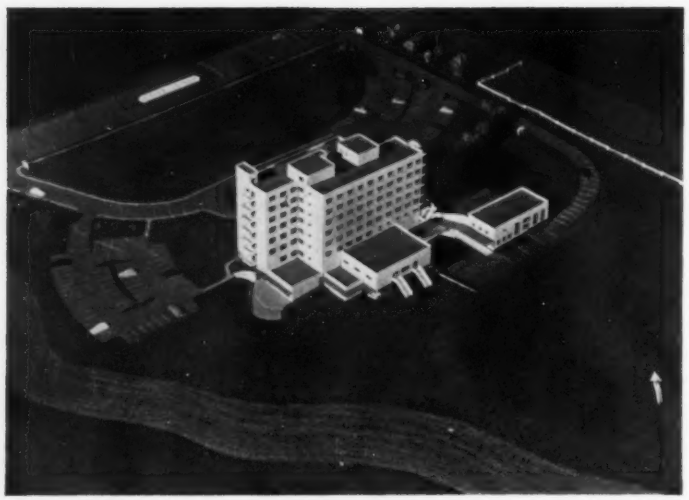
All close to elevators

Basement departments focus toward unloading

Modified cross plan shortens distances

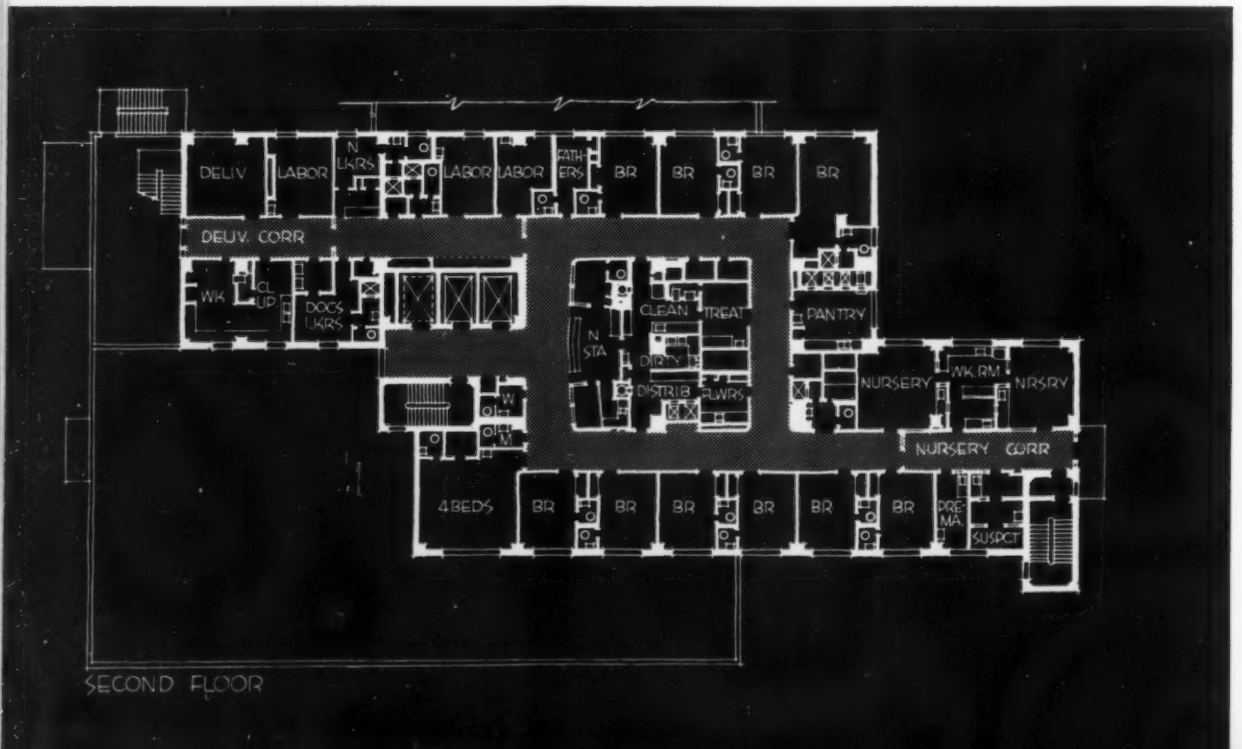






John Black

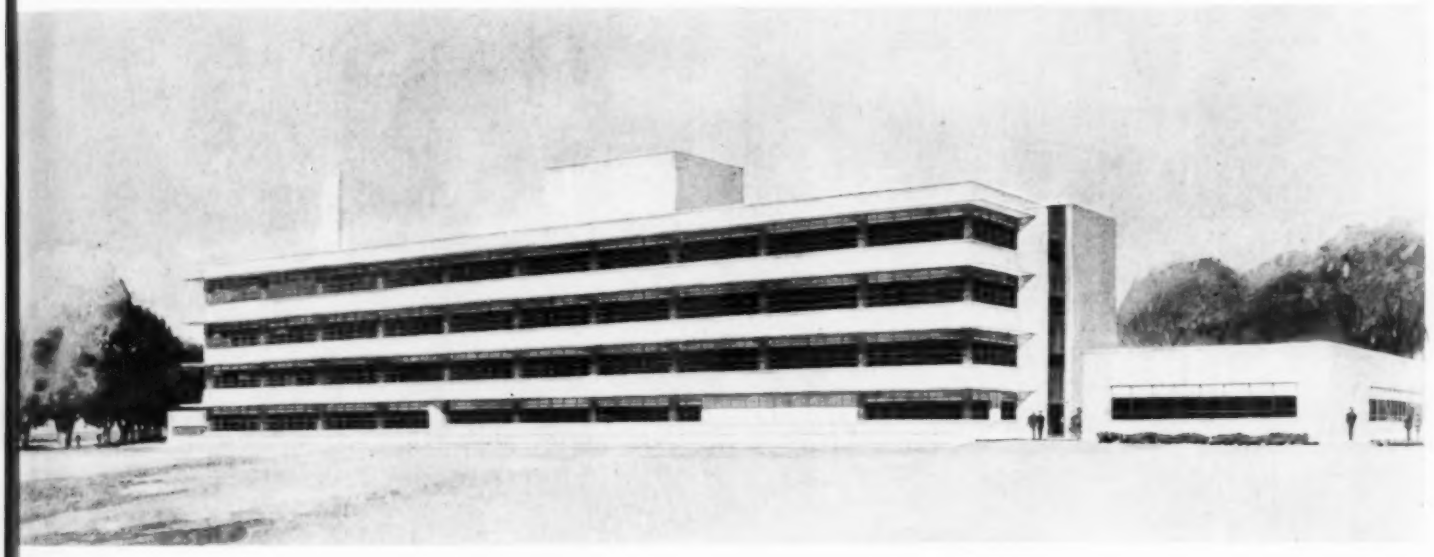
Typical nursing floor, above, divides patient rooms in a fat Z plan, keeping nurses' station at best location for control, also keeping walking to a minimum. Maternity floor, below, uses far points of the Z to isolate delivery suite and nurseries



A good illustration of the advantage of the T form in separating traffic and isolating departments

CONVENTIONAL T PLAN FOR A LARGE HOSPITAL

Marion General Hospital, Marion, Ohio
Dan A. Carmichael, Jr., Architect



A MORE CONVENTIONAL SCHEME than others in this study, this hospital is an excellent example of the typical advantages of the T plan for a large hospital. Good separation of different traffic streams, good shielding of individual departments, positive control of visiting public, best orientation for patient rooms, isolation of noisier activities and deliveries — these are important merits of the T form.

In evaluation of these schematics it is important to remember that this is a large hospital. It has at present a nominal capacity of 158 beds, in three large nursing units on second, third and fourth (not shown) floors, with sufficient medical and service facilities for the addition of a fifth-floor nursing unit of some 50 beds. The unusual size of the nursing units was a careful decision here, based on shortage of well trained nurses. Horizontal travel distances are accordingly somewhat longer than is customary.

In the early stages the architect submitted several designs for the nursing units, ranging from 35 to 50 beds and including one of present size with two nurses' stations at the quarter points. The final scheme puts the nurses' station at the central control point, but cuts nurses' walking distances by duplicating utilities at the quarter points.

Public circulation (first floor) is confined to the northeast section, with visitors and inpatient entrance in the stem of the T, outpatient at the end of a wing. Emergency and general service entrances are from a court at basement level, on the opposite side from public entrances. The staff entrance is at the north end of the stem; this location brings the doctors in past the switchboard operator (who keeps in and out register), then past doctors' lounge and medical records, a good routing of the staff. There was some discussion of the desirability of doctors having to pass through the waiting room, but the staff voiced no objection. Doctors have a separate parking area close to this entrance.

The surgery, located in the usual horizontally contiguous relation to the nursing wing, has typical longitudinal circulation. The stairwell is a mandatory requirement of Ohio laws, but it will be equipped with exit hardware only on all floors, so that it cannot be used for interfloor circulation. Central sterilizing and supply is in the surgical suite, connected by dumbwaiter to obstetrical above, and to the floors below to serve emergency department and the rest of the hospital. The pharmacy is similarly connected with other floors by dumbwaiter, a particular request of the staff.

The obstetrical department takes the usual position in the T plan — in the stem opposite the maternity nursing unit. This department is a little larger than normally, with a few extra labor rooms, again at the special request of the hospital staff.

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ANES. ST.
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EMERG. WAIT'G
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ISSUE, RCVG.
TEL. EQPT.
AUTOP.
FURN. STOR.
SOILED LIN.
MED. RECDS.
GROUND FLOOR
W.
M.
RETIR'G.
BUSN'SS OFF.
SOC. SERV.
ADMT.
MED. RECORDS
ADMIN'TR.
SEC.
DIR. OF NURS'G.
WAIT'G.
SNACK
STAFF LOUNGE
PHARM.
O.P.D. WAIT'G.
2 BEDS
2 BEDS
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DRESS. STOR.
ST.
PEDIATRICS
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EXAM.
X-RAY OFF.
DK. RM.
FILM FILE
ST.
RECEP.
PLAY RM.
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2 BEDS
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CONSULT.
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ELECT. EQUIP.
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BULK FOODS
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KITCHEN
DAY STOR.
PHARM. STOR.
STORAGE
LAUNDRY
STAFF DINING
CAFETERIA
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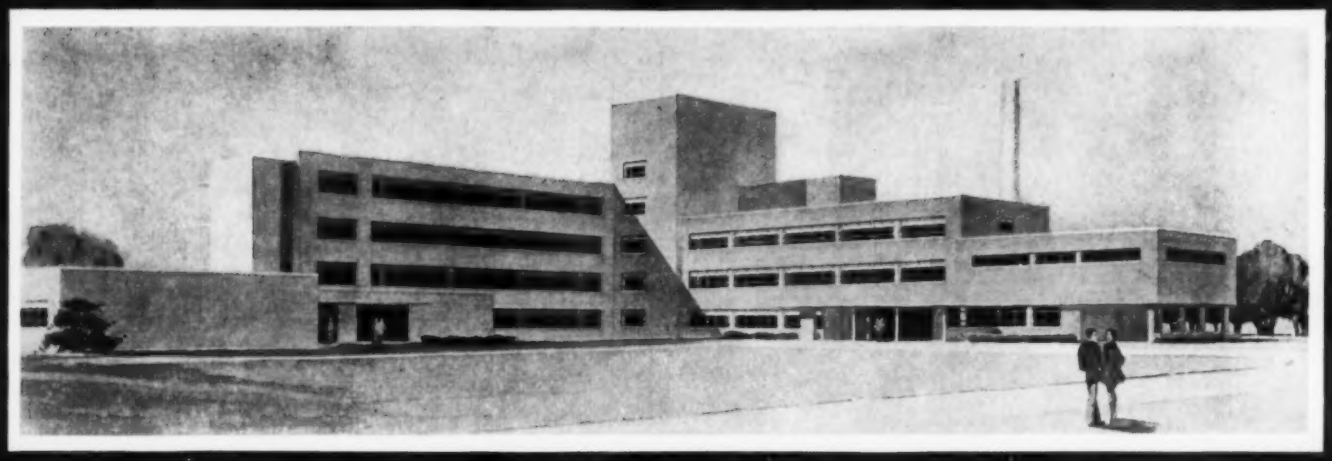

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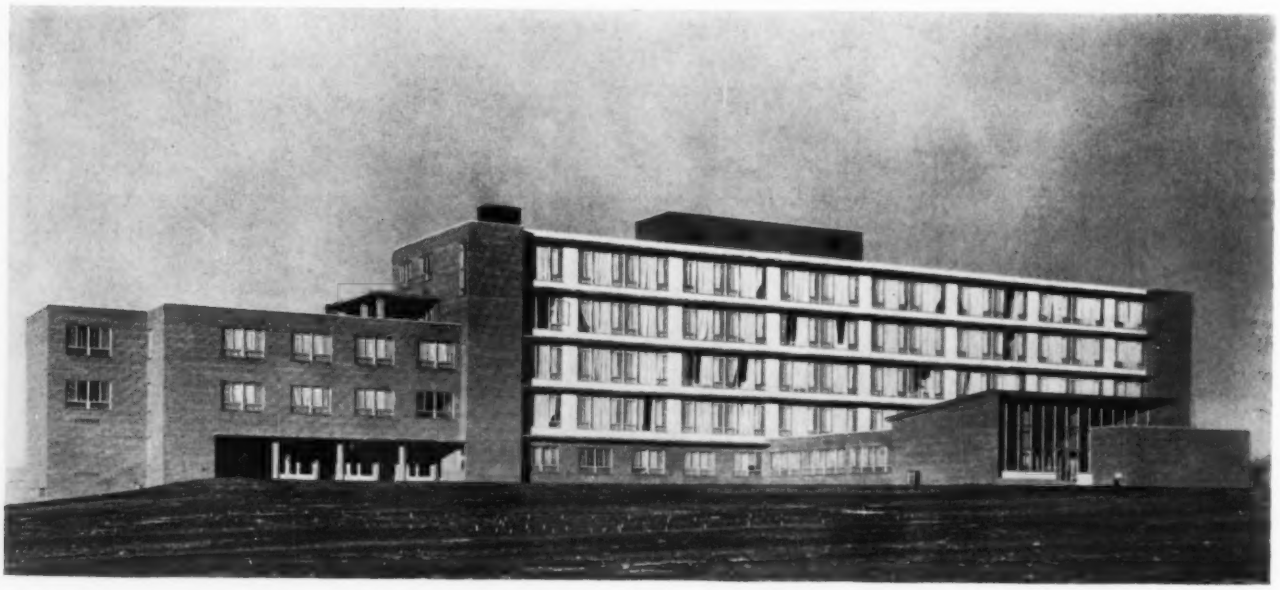
SECOND FLOOR

DOUBLE-CORRIDOR VARIATION ISOLATES IMPORTANT AREAS

Surgery on one corridor, x-ray on other can be joined or isolated as needs dictate

Magic Valley Memorial, Hospital, Twin Falls, Idaho
Fisher & Fisher, Architects

Milo Ketchum, Structural Engineer
Marshall & Johnson, Mechanical Engineers



Williams Photo

BASEMENT FLOOR

SELECTION OF THIS HOSPITAL for this Building Types Study, thus rushing its publication somewhat, is based on the ingenuity with which the relationships of the various departments are developed. A novel variation of the double-corridor scheme gives isolated locations to critical departments, yet maintains good communication and circulation.

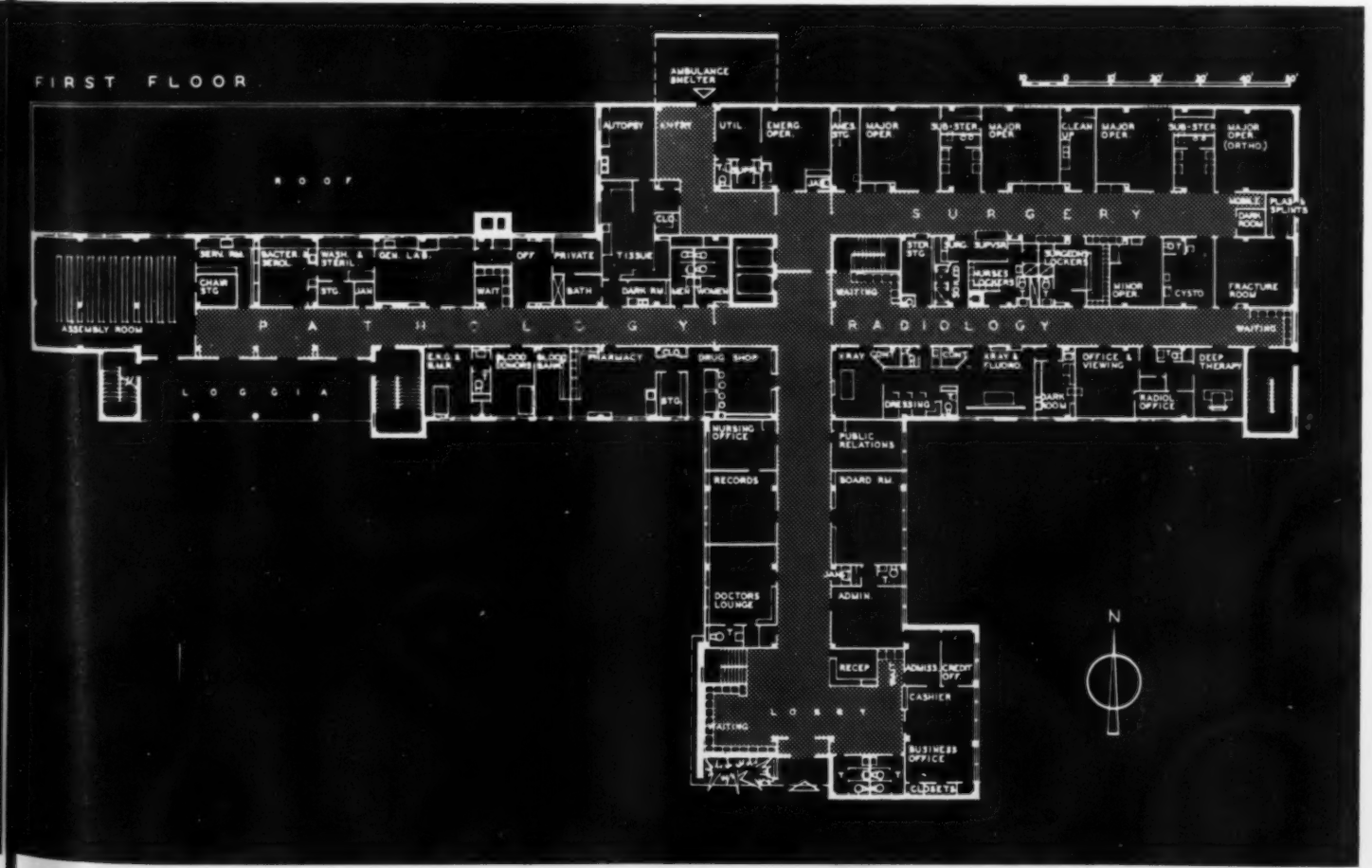
The surgery (first floor) places its four major operating rooms in a line along an isolated corridor at the rear. This section is closely related to emergency and ambulance entrance, so that emergency patients requiring major surgery can be taken quickly to the operating department. In case of disaster, the surgical department can become part of the emergency operation. Note also the convenient accessibility of the tissue section of pathology, in case laboratory work is indicated in connection with surgery.

The double-corridor scheme relates surgery to x-ray in unusually convenient ways. The radiology corridor provides access to nurses' and doctors' surgery locker rooms, so that medical personnel can prepare for operating and never need enter the surgical corridor in street clothes. Routes can be opened from surgery to x-ray, or can be closed off positively to protect the operating rooms. Either the cystoscopy room or fracture room serves in this respect, and either room can be opened in either direction depending on its immediate relationship to operating or outpatient department. Central sterilizing and supply is directly underneath surgery, and works through ingenious double-deck dumbwaiters — one deck for sterile supplies opens in one direction, the other deck for soiled things opens into another corridor. The same isolation of dirty and sterile operates also for the obstetrical department.

The outpatient department is exceptionally large (so are some other departments) because the hospital is virtually alone in fabulous and picturesque Magic Valley, an area that has developed rapidly as irrigation brought prosperity. Outpatient department, with all adjunct facilities, can be closed off completely from the rest of the hospital, and yet is convenient for inpatients. Only persons needing x-ray need go beyond the barrier.

Obstetrical department uses the same double-corridor idea on the second floor to isolate the delivery corridor and yet give short routes for authorized personnel. This department, with its nurseries, is quite large, again because of the growth of the area. There is one unusual room in the delivery suite, one labelled obstetrical surgery, for caesarian deliveries, a special request of the hospital staff.

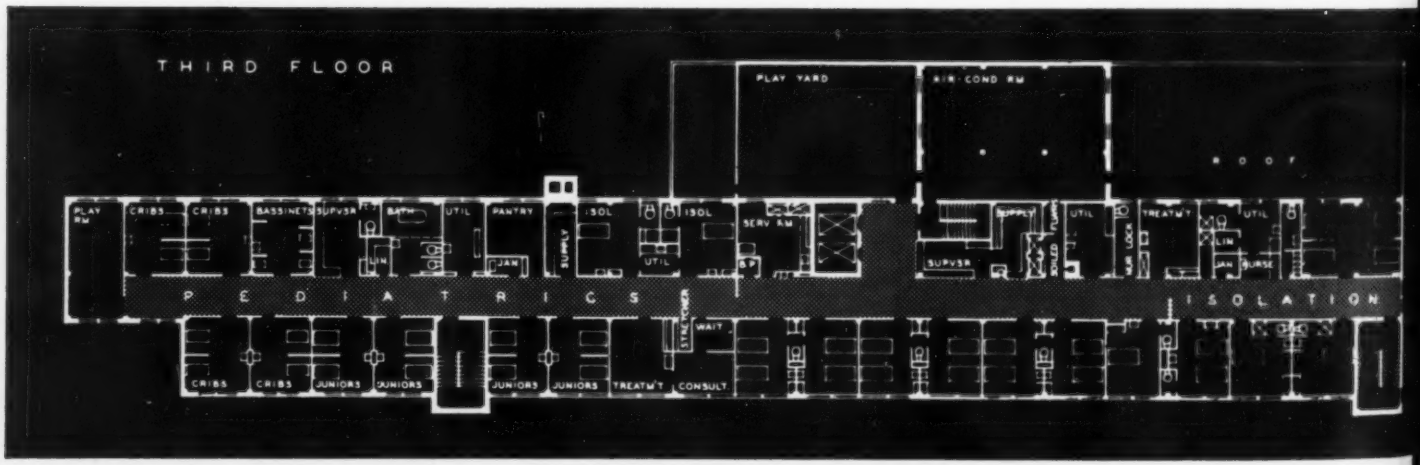
The administration department, in its own wing, is well planned for functioning of its sub-groups.

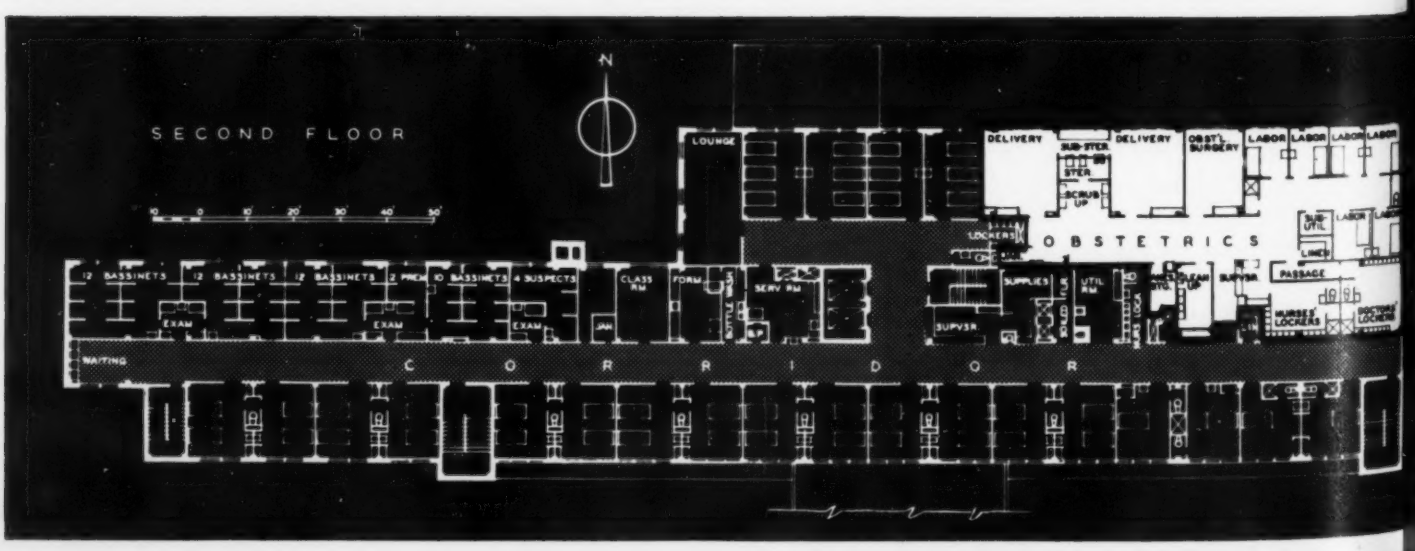


One of single-bed rooms

Top, left, reception room

Left, drug shop, first floor



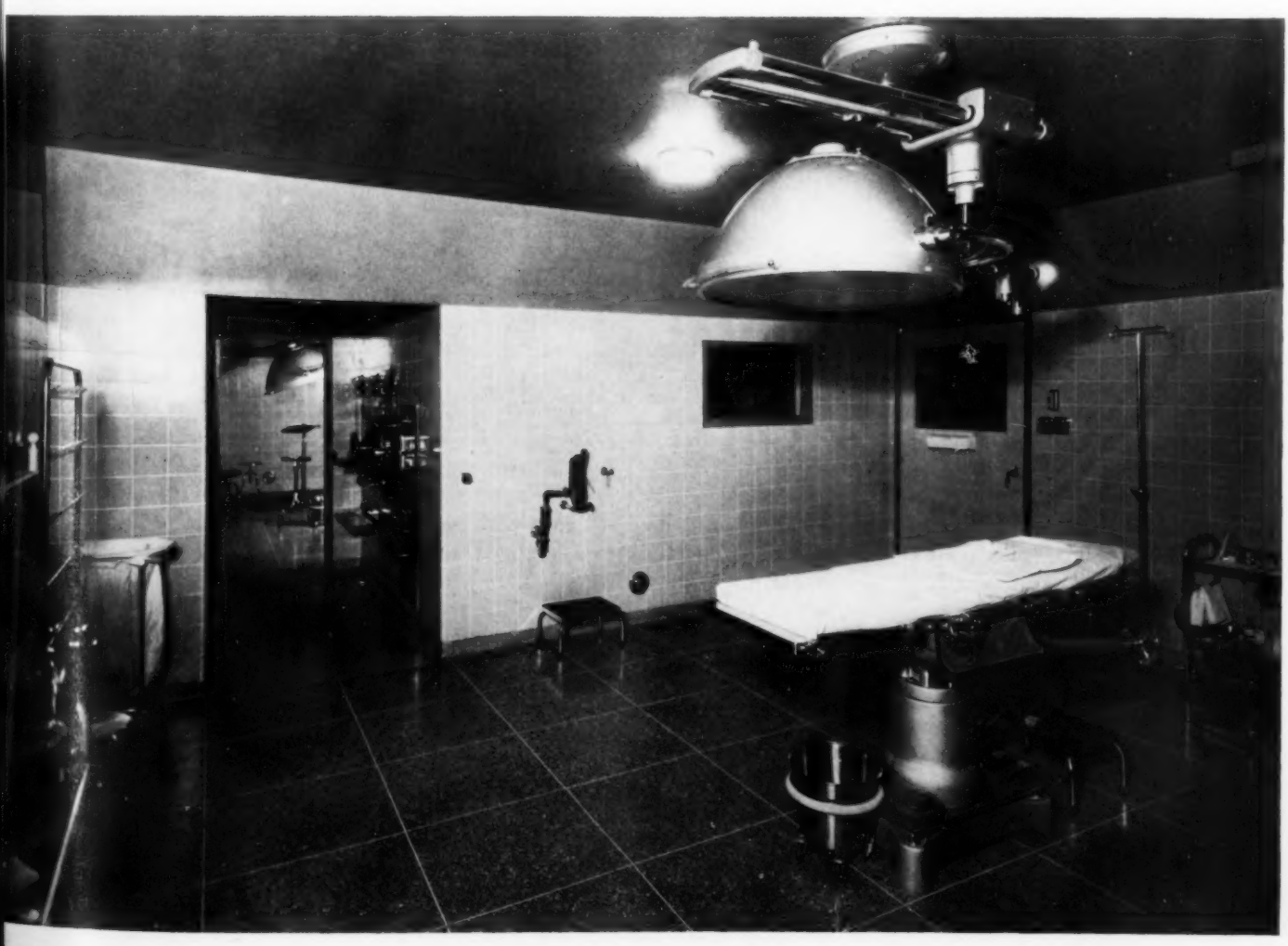


Nurses' station, third floor

Main kitchen, in basement

Williams Photo

Typical major operating room, first floor

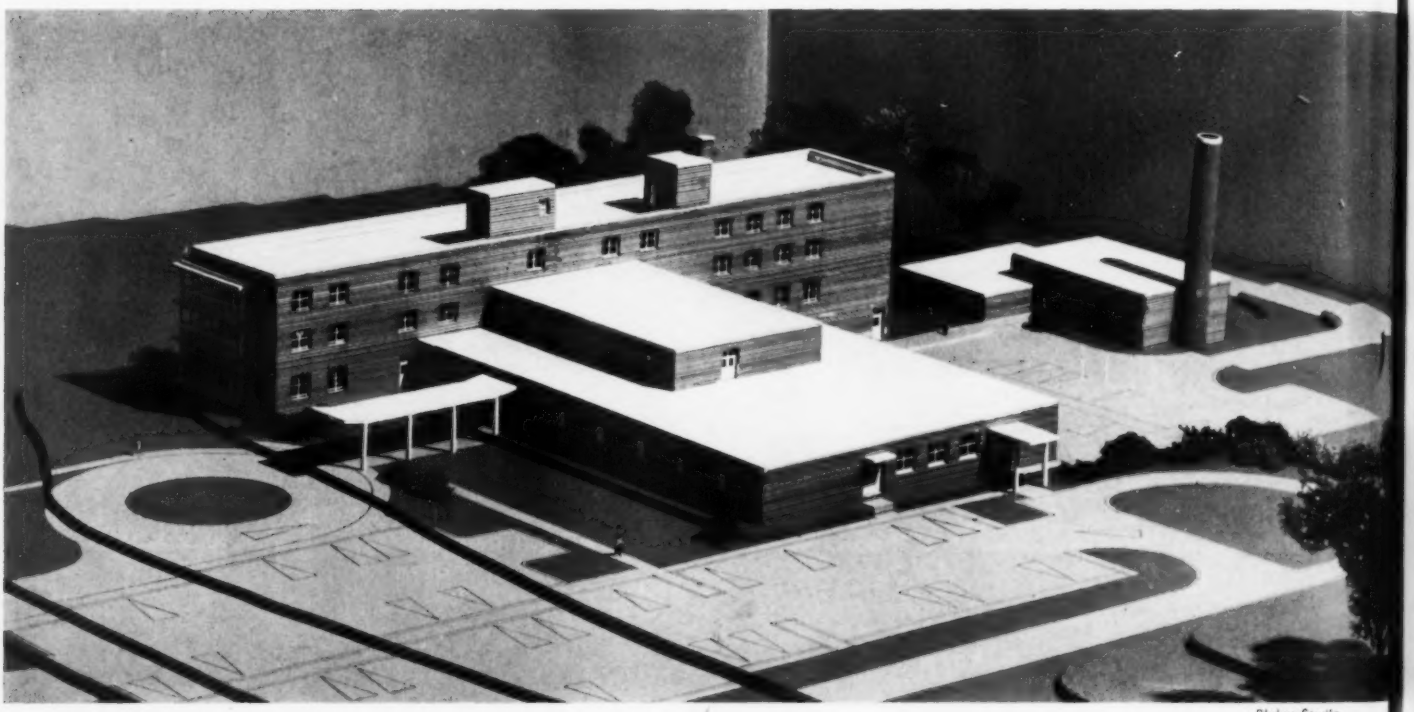


T-FORM HOSPITAL WITH TRIPLE CORRIDOR PLAN

Ingenious scheme permits double-size medical facilities without sacrifice of T-plan merits

Riley County Hospital, Manhattan, Kansas
F. O. Wolfenbarger & Associates, Architects

Finney & Turnipseed, Structural Engineers
Howarth, Scott & Kinney, Mechanical Engineers



Blakes Studio

HOSPITALS

A THICKENED T PLAN with a triple corridor scheme is the most interesting circulation idea in this hospital. It makes possible a good grouping of administration, adjunct facilities, emergency and operating departments, each well isolated from each other and from the rest of the hospital. All of these departments are at present oversize, for the nominal bed capacity of 95 beds can be enlarged by the addition of three nursing floors.

The scheme preserves all of the normal advantages of the T form, and avoids some of the distortions often produced in the effort to enlarge basic departments in anticipation of expansion. The top of the T is, as usual, reserved for nursing units, with all extraneous traffic kept out of nursing corridors. In this plan the nursing wings are so fully protected that there is not even one entrance on this side of the building; even the lowest floor (first) becomes available for patients' rooms. This level becomes a basement at one side of the stem of the T, but has full window height for patients' rooms and for dining rooms and kitchen.

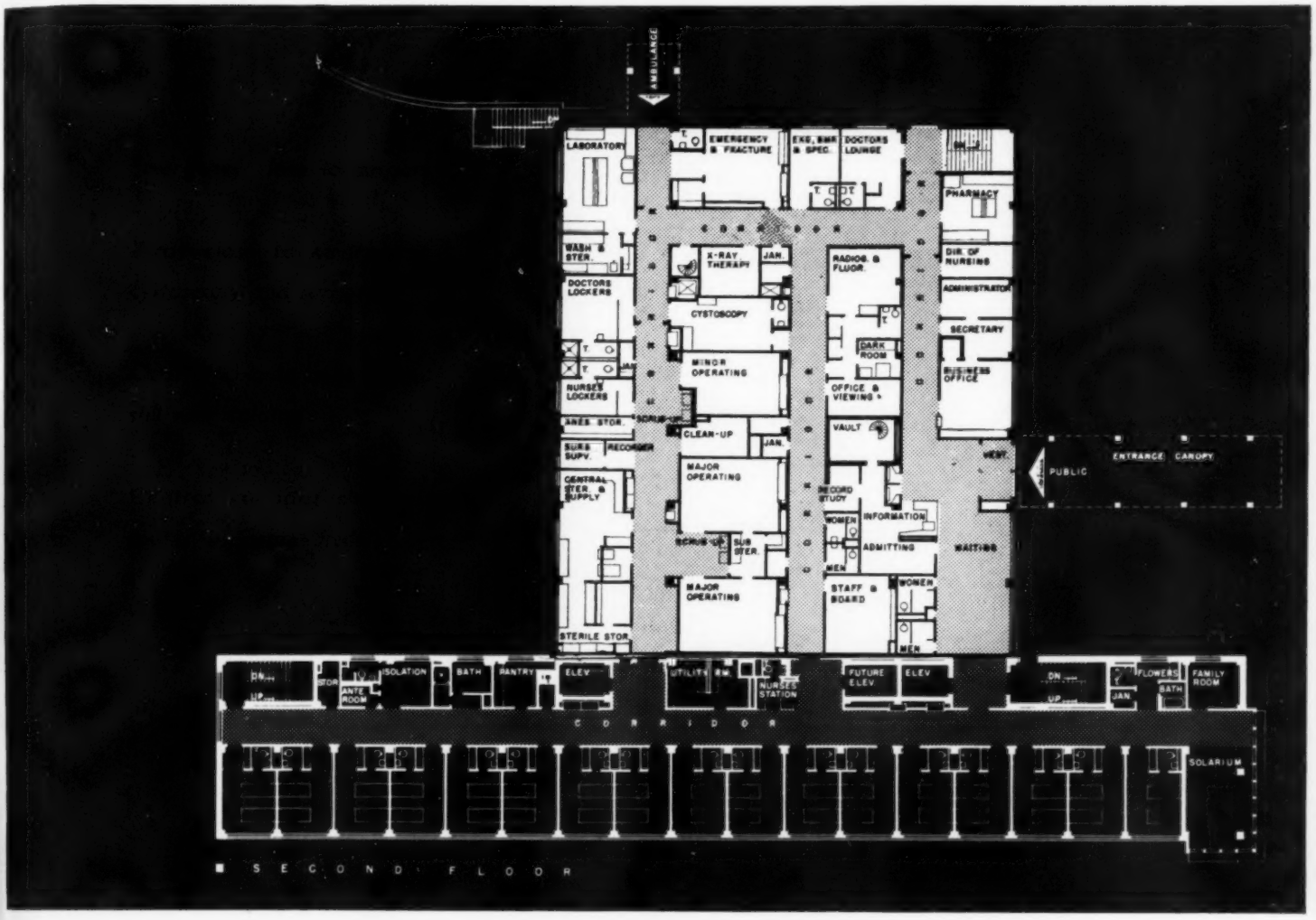
The center of activity then becomes the second floor, and it is here that the triple-corridor plan keeps departments separated but close together, and keeps traffic unsnarled. Main entrance leads quickly past admitting office to patients' rooms or to elevators. Administration department is to the other side of the main entrance.

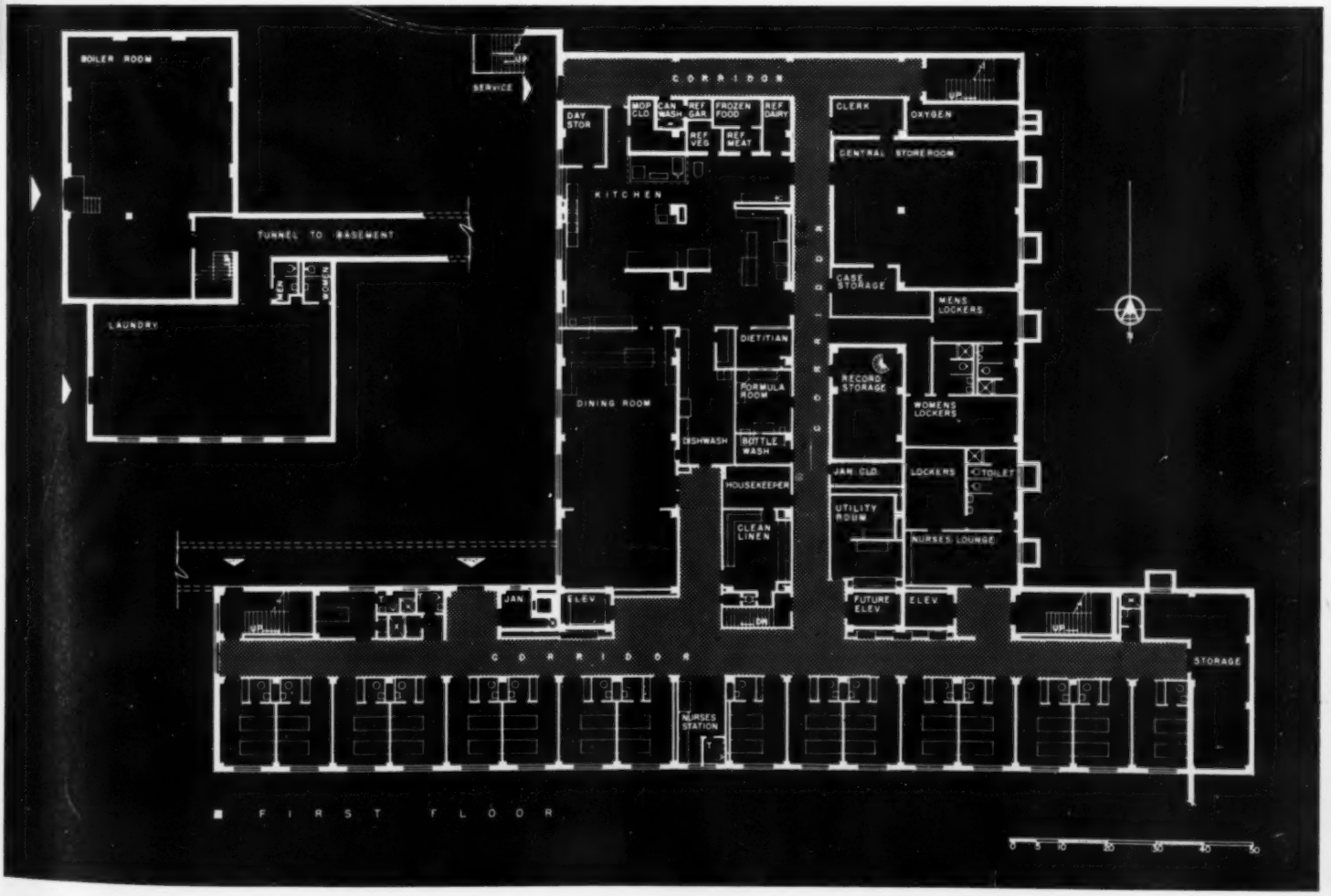
Doctors have a separate entrance, leading to administration, adjunct facilities, emergency or operating departments. It should be explained that this hospital does not contemplate operation of an outpatient department, so very little public traffic is anticipated to adjunct facilities; they are naturally placed for relationship to other medical facilities.

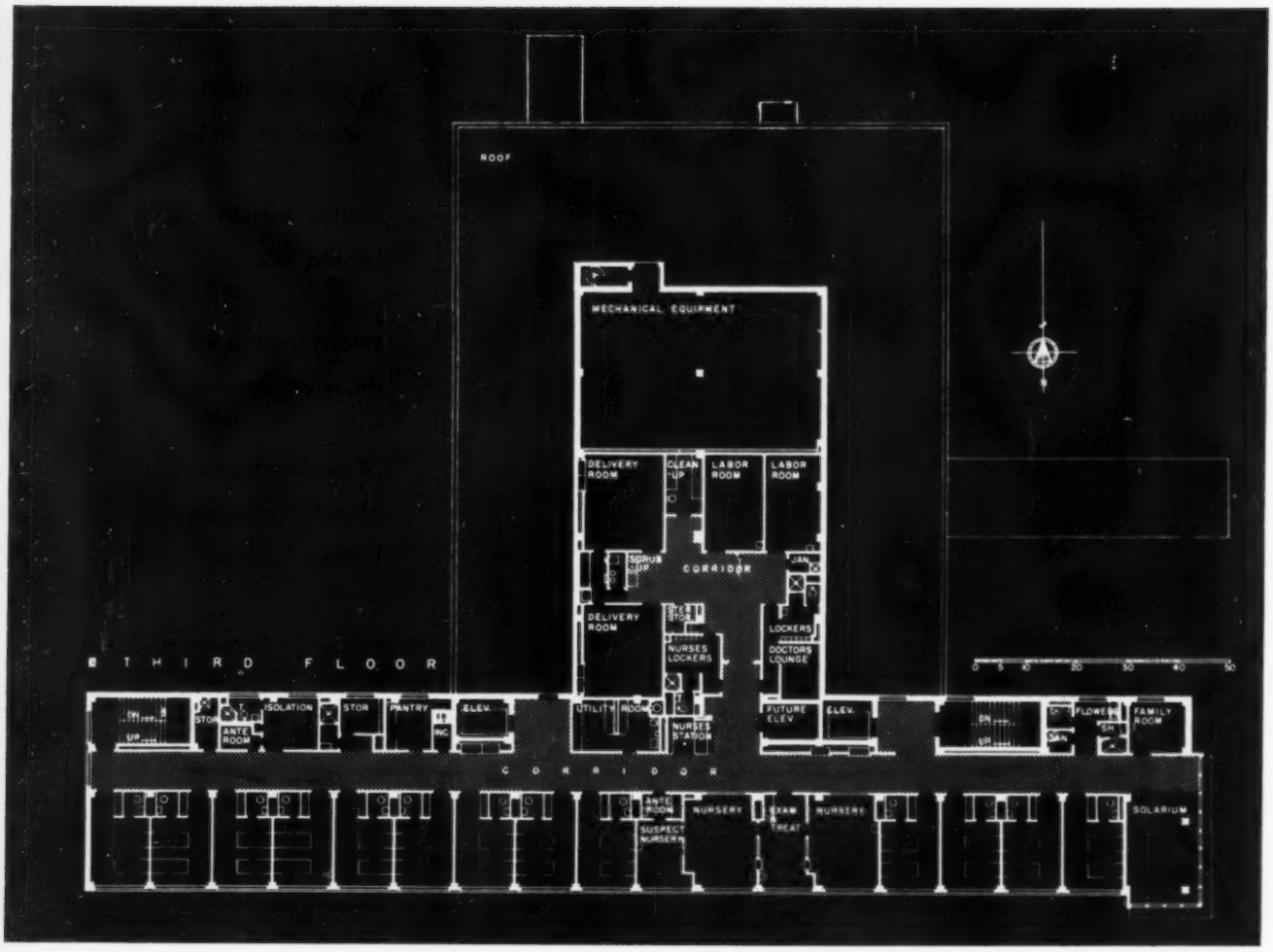
The emergency entrance leads quickly, beyond the emergency operating room, to x-ray or to surgery.

The operating department is centrally located, but still isolated. The central corridor offers a protected by-pass around the operating department; also makes for quick access from this department of x-ray facilities in the interior space.

On the third floor the stem of the T is much reduced; it need accommodate only the obstetrical department,


AMBULANCE
LABORATORY
EMERGENCY & FRACTURE
EKG, BMR & SPEC.
DOCTORS LOUNGE
PHARMACY
WASH & STER.
X-RAY THERAPY
JAN.
RADIOG. & FLUOR.
DIR. OF NURSING
DOCTORS LOCKERS
CYSTOSCOPY
ADMINISTRATOR
SECRETARY
DARK ROOM
MINOR OPERATING
BUSINESS OFFICE
NURSES LOCKERS
OFFICE & VIEWING
ANES. STOR.
CLEAN-UP
VAULT
SURG. SUPV.
RECORDER
JAN.
ENTRANCE CANOPY
PUBLIC
MAJOR OPERATING
CENTRAL STER. & SUPPLY
RECORD STUDY
INFORMATION
WOMEN
ADMITTING
WAITING
MEN
SUB STER.
MAJOR OPERATING
STAFF & BOARD
WOMEN
MEN
STERILE STOR.
DN.
UP
STOR.
ANTE ROOM
ISOLATION
BATH
PANTRY
ELEV.
UTILITY RM.
NURSES STATION
FUTURE ELEV.
ELEV.
DN.
UP
FLOWERS
BATH
JAN.
FAMILY ROOM
CORRIDOR
SOLARIUM
SECOND FLOOR


BOILER ROOM
SERVICE
UP
CORRIDOR
DAY STOR
MOP CLO.
CAN WASH
REF GAR.
FROZEN FOOD
REF DAIRY
REF VEG.
REF MEAT
CLERK
OXYGEN
UP
CENTRAL STORE ROOM
KITCHEN
TUNNEL TO BASEMENT
MEN
WOMEN
CASE STORAGE
MENS LOCKERS
LAUNDRY
DIETITIAN
RECORD STORAGE
FORMULA ROOM
DINING ROOM
WOMENS LOCKERS
DISHWASH
BOTTLE WASH
JAN. CLO.
LOCKERS
TOILET
HOUSEKEEPER
UTILITY ROOM
CLEAN LINEN
NURSES LOUNGE
JAN.
ELEV.
FUTURE ELEV.
ELEV.
UP
DN.
UP
CORRIDOR
STORAGE
NURSES STATION
FIRST FLOOR
0 5 10 20 30 40 50



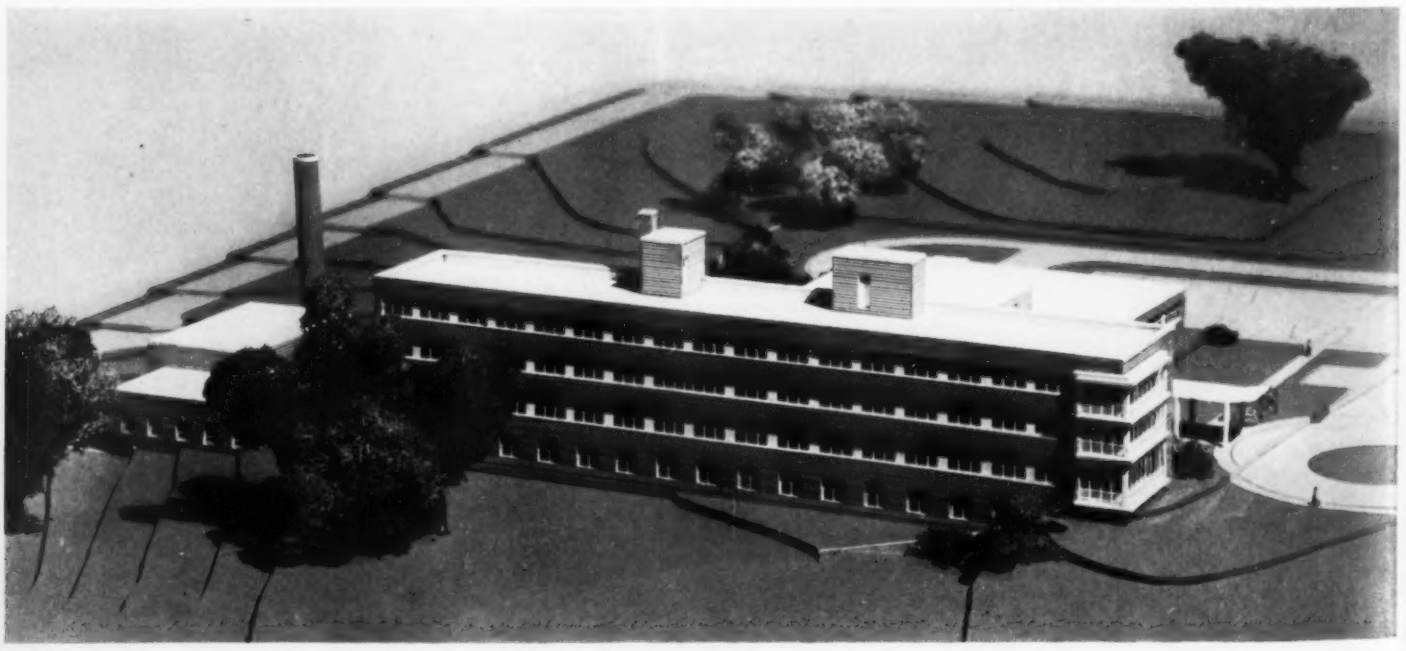
HOSPITALS

plus air conditioning equipment for this suite and the floor below. Here the delivery suite has its own cul de sac, and opens directly to the maternity nursing unit.

Notice that the T plan preserves, again as normally, the ideal location for the nurses' station — at the point of maximum control, also central with respect to patients' rooms and utilities surrounding nurses' station.

Costs are given as: total (including Group I equipment), $1,239,582 (with three nursing units); cost per bed, $13,058; cost per sq ft, $20.45; cost per cu ft, $1.58. In this the bed count is 95, though with full use of all rooms, some 120 patients could be housed.

Blakes Studio



INDUSTRIAL LIGHTING SYSTEMS APPRAISED FOR COMFORT AND ECONOMY*

This evaluation of typical fluorescent industrial luminaires compares visual comfort, operating and first costs and maintenance. It describes recently developed fixtures with openings in the top which cast a portion of their light upward to avoid ceiling gloom and reduce brightness ratios, and which maintain better than closed-top fixtures

IN THE PAST industrial lighting has been applied with less attention to the virtues of seeing comfort than in offices. Yet, many visual tasks are much more critical and difficult in factories. Industrial luminaires which cast all light downward account for dark gloomy ceilings, resulting in poor brightness ratios and discomfort.

Perhaps the very diversity of conditions found in all types of industrial areas, from foundries to laboratories, has been partly responsible for this situation. Today, however, the lighting industry is making equally diversified fixtures for what might best be called "production lighting" — lighting for all areas where production is the important factor. And now the concept that comfort levels for industrial lighting systems should approach those employed in offices is agreed upon in most lighting circles, although in practice this concept still has a long way to go.

Actually, the steps to quality lighting are simple: 1. Provide an adequate level of illumination for a given visual task. 2. Lighten all surfaces — ceiling, walls, floor, bench tops and machinery in colors as light as practicable for the area involved. 3. Give more — much more — consideration to improved shielding of light sources and a greater upward component of light: *the recently developed luminaires with openings in the reflector tops have been designed to furnish this upward light.* Not only do these fixtures improve seeing conditions, but they accumulate less dirt, as shown by tests.

Industrial Luminaire Analysis

To aid in the application of quality factors to industrial lighting installations, an analysis was made of typical fluorescent industrial luminaires, appraising their characteristics in relation to comfort of seeing, economics and maintenance. A summary of this analysis is given in Table 1.

Types of luminaires included in the analysis are for regular industrial applications, are all-metal, sturdily constructed, using channels to house ballasts, and lampholders, with detachable closed end all-white all-porcelain reflectors. Some luminaires have longitudinal baffles, some have egg-crate louvers, and some have no shielding other than the reflector.

The comparative analysis of fluorescent luminaires is divided into three categories:

(A) Group I — Solid top reflectors with all light directed downward.

(B) Group II — Slotted top reflectors with 10 to 15 per cent uplight and the remaining light directed downward.

(C) Group III — Open top reflectors with 30 to 50 per cent uplight and the remaining directed downward.

Factory Area Assumed

In order to analyze each luminaire type in relation to comfort and economics, a typical factory area representing average construction features was assumed. The room size is 60 by 120 ft. Luminaires are mounted 10 ft above the floor. The height of the ceiling is considered to be 14 ft and of concrete slab construction.

To study and compare the various types of luminaires under varied conditions, four factory finishes with reflection factors as follows were considered:

	Ceiling	Walls
1.	75%	50%
2.	50	30
3.	30	30
4.	30	10

Fixtures in the foreground direct 10 per cent of their light onto the ceiling to help reduce brightness contrasts. Note, in comparison, the spotty effect of the fixtures in the inset section of the photo where all light is directed downward

** This article is an abstract from a paper by George J. Taylor and R. D. Bradley (Day-Brite Lighting, Inc., St. Louis) presented at the National Technical Conference of the Illuminating Engineering Society, September 8–12, 1952, Chicago, Illinois.*

Table I

General Data	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	3/40	2/85	2/75	2/40	2/40	3/40	3/40	2/85	2/75	2/40	2/85	2/40	3/40	2/40	2/75	2/40
Lamps per section	6–40	4–85	2–75	4–40	4–40	6–40	6–40	4–85	2–75	4–40	4–85	4–40	6–40	4–40	2–75	2–40
Luminaire shielding *	14° x 2°	14° x 2°	14° x 0°	14° x 2°	28° x 2°	26° x 28°	13° x 2°	14° x 2°	14° x 0°	13° x 2°	25° x 28°	27° x 2°	26° x 28°	26° x 28°	35° x 24°	35° x 3°
Luminaire distribution																
Uplight—%	0	0	0	0	0	0	9	10	10	10	13	12	11	14	47	30
Downlight—%	100	100	100	100	100	100	91	90	90	90	87	88	89	86	53	70
Overall efficiency—%	77.0%	78.5%	79.0%	78.0%	71.0%	63.8%	77.2%	83.2%	81.4%	82.0%	72.5%	70.5%	64.4%	69.1%	81.0%	79.5%
Maintenance factor **	.65	.65	.65	.65	.65	.60	.70	.70	.70	.70	.65	.70	.65	.65	.70	.70
Coeff. of utilization † Room reflectances††75/50	.70	.73	.72	.72	.65	.60	.68	.73	.70	.72	.63	.63	.58	.61	.62	.65
Room reflectances 50/30	.67	.68	.68	.68	.62	.57	.64	.68	.65	.67	.59	.58	.53	.56	.52	.57
Number luminaire sections Room reflectances 75/50	58	41	80	84	93	73	55	39	77	78	48	89	69	99	86	172
Room reflectances 50/30	60	44	95	89	98	77	58	42	83	84	52	97	75	108	103	196
Cost Data (75/50)																
First cost including lamps Per cent (of Type 1)	100%	101%	108%	123%	142%	144%	95%	97%	104%	115%	134%	136%	136%	169%	143%	149%
Annual operating cost Per cent (of Type 1)	100%	100%	102%	105%	119%	136%	95%	94%	97%	97%	122%	113%	127%	135%	118%	114%
Cost per sq ft																
First cost/sq ft	$.63	$.64	$.69	$.78	$.90	$.91	$.60	$.61	$.66	$.73	$.85	$.86	$.86	$1.07	$.91	$.95
Annual operating cost/sq ft	$.23	$.23	$.24	$.24	$.27	$.31	$.22	$.22	$.22	$.22	$.28	$.26	$.29	$ .31	$.27	$.26
Comfort Data (75/50)																
Glare factors																
Crosswise	234	157	140	146	75	138	121	112	98	97	77	47	68	48	14	8
Lengthwise	276	152	125	130	92	122	131	140	95	94	62	56	64	41	15	31

* Luminaire shielding: first figure denotes crosswise shielding; second figure lengthwise shielding.
† Coeff. of utilization = total light received by working plane/ total lamp output.
** Indicates fraction of initial output maintained in service.
†† Room reflectance: First figure denotes ceiling reflectance; second figure wall reflectance.

While all sorts of conditions for room finishes are still prevalent in many industrial interiors, it is not the intent to encourage the use of low reflectances of room finishes. Later it will be shown that low reflectances are undesirable for many reasons.

Basis for Computations

Illumination computations were made for the 16 types of lighting systems to provide 50 ft-candles maintained. The conditions and general factors applying to these computations are shown in Table I.

The assignment of maintenance factors for various luminaires favors slotted and open top reflectors over solid top reflectors. Tests have been conducted showing that a draft action takes place through reflector openings which reduces the rate of depreciation of light due to dust and dirt accumulation.

In a 10-month test by the Detroit Edison Co., a reflector with circular openings depreciated only eight per cent in light output, while a closed-topped fixture depreciated 21 per cent during the same period.

It is possible that completely open top reflectors with high upward light components may have some advantage over slotted top reflectors with lower upward light. However, this condition has not been established and maintenance factors for both these classifications were assigned the same values for similar type luminaires.

Computed costs are based upon an in-service level of 50 ft-candles. Included in the wiring costs are the cost and installation of lighting panel boards, branch circuit wiring in conduit to luminaire channels and wiring connections to each luminaire.

The installation of luminaires in their proper location includes cost and installation of mounting anchorage points in the ceiling from which luminaires and suspension members are supported.

The installation costs of luminaires are based upon an unoccupied room area. Such costs may be materially higher if machines or other equipment are in place making it difficult or impossible to use and move scaffolding in the room.

Appraisal of Lighting Systems

Comparisons of first costs for the luminaires analyzed for room finishes are shown in Table I. However, the first cost and operating cost of a lighting system are by no means the only criteria upon which a lighting installation is selected. Other important factors besides cost may be the determining factor in the final selection of the system to use. These factors, not necessarily in order of their importance, may be listed as follows:

1. Comfort — quality of illumination
2. Appearance — esthetic effect
3. Maintenance — lasting qualities
4. First cost — initial investment
5. Operating cost — annual investment

Whatever weight or importance is assigned to any of the above factors will determine the type of lighting system to use.

If high comfort and good overall room appearance is desired, System 15 might be considered. If low maintenance is coupled with reasonably good comfort, System 12 may be the answer. If cost is a consideration with a fair degree of comfort, System 9 might be considered. The point is, the five factors just listed do have a direct bearing on the final selection of a lighting system.

Seeing Comfort. The comfort, or quality, of the illumination provided by a lighting system takes the following factors into consideration:

1. Brightness and area of the source.
2. Luminaire light distribution and proper brightness ratios and contrasts.
3. Proper shielding of the source.
4. Overall room conditions, such as proper brightness patterns and ratios between visually adjacent surfaces, as well as between work, and work surfaces and other room areas or background.

To correlate all these features into one comprehensible condition to produce the desired result in terms of comfort has always been a difficult thing to achieve, even by the experienced lighting engineer.

In appraising the comfort of the lighting systems analyzed here, the Harrison-Meaker method of glare rating has been used, the significance of which is explained later. It was felt that this method provided a relatively valid figure of merit from the standpoint of comfort. It applies widely to varying types of luminaires under given room conditions.

Glare factor values for the 16 lighting systems are shown in Table I. Only one room size, ceiling height and room finish condition is given for the sake of simplicity. This study, however, indicates the importance of carefully selecting a lighting system if comfort of seeing is to be obtained.

This glare factor can be interpreted as follows for industrial lighting:

Range	*Occupant Reaction*
0–25	Few or no complaints. Comfortable for all
25–50	Practical average. Comfortable for most occupants
50–75	Average borderline of discomfort
75–115	Approximately one-half of the occupants may complain of discomfort
115–225	Approximately three-fourths of the occupants may complain of discomfort

Based on this comfort range it is observed that highest comfort is obtained with Group III luminaires having 30 to 50 per cent upward light component. Attention again is called to the fact that all room finishes must conform to conditions previously given to obtain the best results of quality lighting and "brightness engineering" to achieve comfort of seeing. For instance, if machinery or floors or bench tops are dark in color (of low reflectance value) while ceilings are bright by comparison, discomfort may result.

Next in line in consideration of employee comfort are Group II luminaires with 10 to 15 per cent upward light component. Systems 12 and 13 fall well within the comfort range of glare factors for industrial type applications. So does System 14, but for comparable range of comfort, the costs are high. System 11 fares well from the standpoint of comfort and cost. It is interesting to note that all these systems have better than normal shielding.

It will be seen that glare factors are about the same for System 9 (two 75-w slimline) as System 10 (two 40-w fluorescent). This close proximity of results will apply to slimline vs. fluorescent in other instances also. For example, System 12 with two 40-w fluorescent as shown would give reasonably close results with the same type of luminaire for two 75-w slimline.

Group I luminaires have glare factors out of the normal comfort range in the higher ft-candle brackets, and for this reason they are not as suitable for industrial applications where comfort is a criterion.

The glare factor values shown in Table I are computed for a lighting level of 50 ft-candles. Since comfort is a measure of projected and accumulated glare sources (luminaires and ceiling brightness) its range in terms of glare factors will increase with higher ft-candle levels and decrease with lower levels. So in determining a lighting system for comfort, it must first be established what level of illumination is required for the specific seeing task. If "ordinary seeing tasks" are involved and 30 ft-candles are recommended, glare factors for System 12 would be around 35 crosswise and 40 lengthwise as compared with 47 and 56 respectively when 50 ft-candles are required for "difficult or critical seeing tasks." At 60 ft-candles the respective values would be around 53 and 63. Similar comparative reasoning applies to other systems presented in Table I.

Attention is called to the fact that glare factors for any given level of illumination decrease when mounting heights of luminaires increase. Also as room sizes become smaller glare factors become lower.

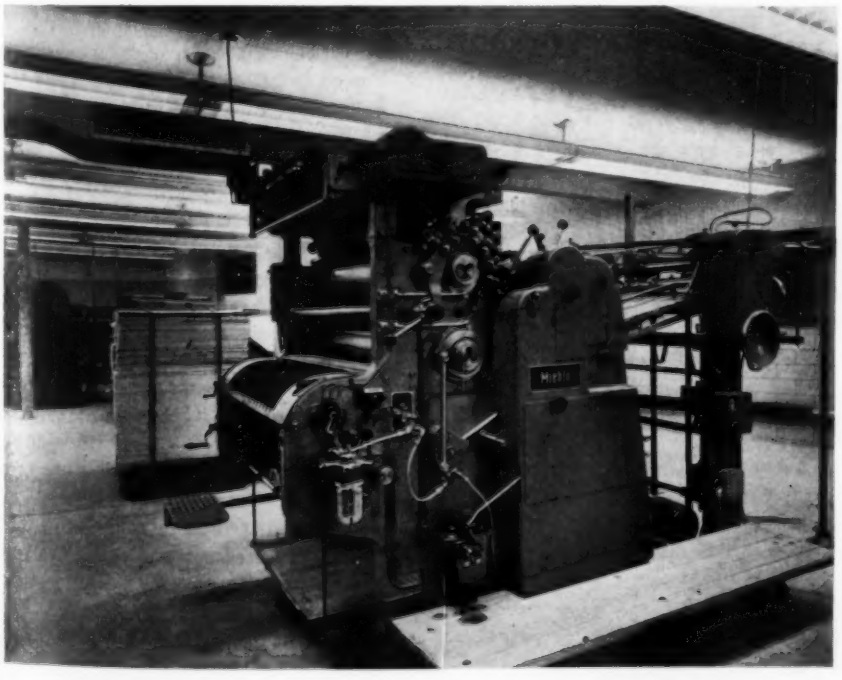
Maintenance. In the analysis, maintenance costs are based principally upon the type and number of luminaires used in the installation. The costs include only cleaning or washing costs and labor to replace burned out lamps. The two 85-w units (System 2, Group I, and System 8, Group II) are the cheapest to maintain in their respective groups. Next in line in maintenance economy are the two 75-w units (System 3, Group I, and System 9, Group II).

It should be pointed out that maintenance is more than just the cost relation indicated above. Construction of a luminaire is of vital importance. In factories, machinery and operating equipment is of a heavy duty type to withstand hard production usage.

First Cost. It is to be expected that good room finishes (75/50) have good

(*Continued on page 206*)

Here we see the comfortable lighting environment provided by fixtures with a 50 per cent upward light component, together with the use of light-colored machinery, walls and floor

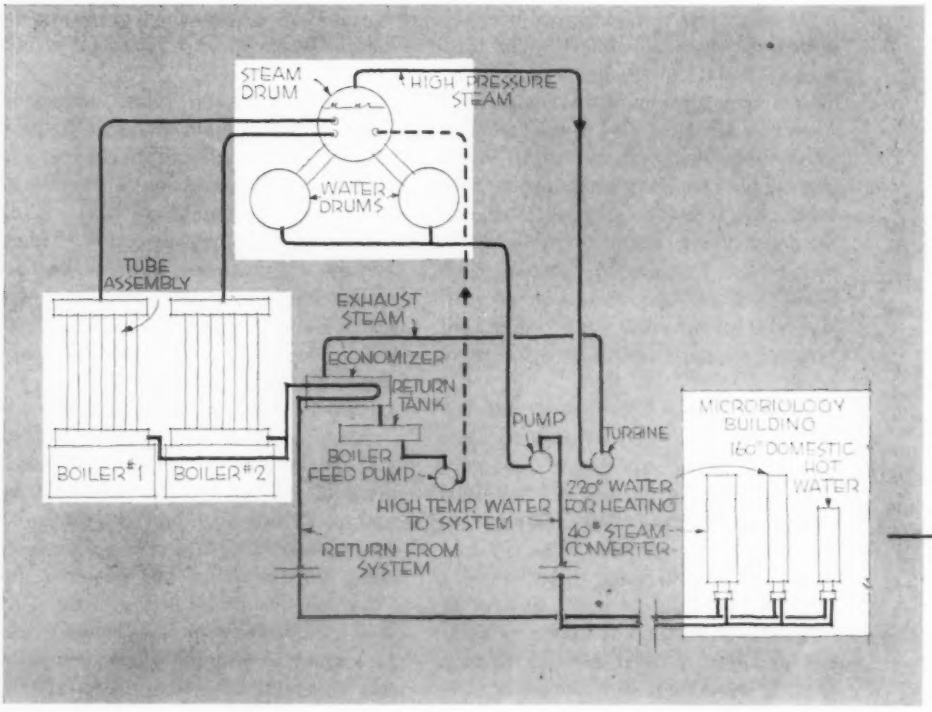


PIPING PROBLEMS SIMPLIFIED WITH HIGH

1. Characteristics of high-temperature hot water distribution and its advantages

2. Development of a high-temperature system for Rutgers University

By Fred L. Moesel, Fred L. Moesel Associates, Consulting Engineers



Schematic diagram of the high-temperature hot water system for Rutgers University. High-temperature water flows from drums to steam or medium-temperature hot water convertors in each building. High-pressure steam operates the turbine-driven circulating pumps. The return water is preheated by the exhaust steam

Most of us are familiar with gravity and forced hot water heating systems for buildings using temperatures up to approximately 220 F, but now we are hearing about high-pressure, high-temperature hot water systems in the neighborhood of 400 F which make possible a wide range of hot water temperatures, and can produce steam as well. In other words, high-temperature hot water systems are designed to supply heat over long distances using water as the heating medium instead of steam, and as such are applicable to district heating, hospitals, airports, industrial buildings, college buildings, etc. The water is in a closed circuit and is kept under pressure corresponding to the desired temperature. For example, water at 375 F would have a pressure of 185 psia. It is only recently that high-temperature water distribution systems have been given serious consideration in this country, although they have been used in Europe for many years.

1. Characteristics and Advantages

There are many advantages inherent in all types of forced hot water distribution systems. Two of the important ones which probably will be of most interest to the architect are: (1) internal corrosion is virtually eliminated; (2) variation in levels of any terrain does not offer obstacles, since the water is pumped up or down as required; whereas with steam, lines must be pitched down in the direction of flow to drain properly, and must be dripped at all low points and when pipes rise.

Other advantages of high-temperature hot water distribution include:

1. No condensate handling equipment, eliminating steam traps, drip mains, condensate pumps, etc.

2. Flexible, close temperature control.

3. Reduction in number of licensed steam plant operators required.

4. Low maintenance cost.

5. Large heat storage capacity of water as compared with steam.

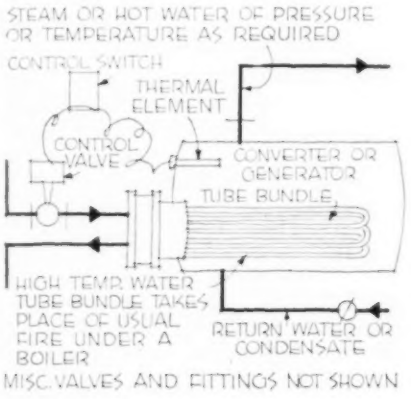
6. Fuel savings up to 20 per cent, due to even operation of boilers.

In a steam system the drips and the drip system are the weak links which often require the opening of conduits for expensive repairs and replacement. The condensate or water running in the bottom of steam pipes to the drip points in the presence of steam erode the bottom of the pipe and ultimately wear the pipe to the point where replacement is required. After installation of a high-temperature water system, changes affecting carrying capacity of the water mains are easily handled, and if the existing pumps cannot handle the pressure required for the change in resistance, the pump can be replaced or in some instances just the impeller is changed.

The first cost of a complete system including the boilers, distribution system, convertors and appurtenances is usually about 20 per cent below the cost of the corresponding steam system, depending on design. Operating cost saving can approach the same figure.

TEMPERATURE HOT WATER DISTRIBUTION

We feel that the high-temperature hot water mains will outlast at least two replacements of steam mains which have been destroyed as described above, and will have a life equal to the buildings connected to them. As long as the conduit remains watertight, outside deterioration of the mains is eliminated, and the remaining destructive force would be friction or the wear incurred by the


STEAM OR HOT WATER OF PRESSURE OR TEMPERATURE AS REQUIRED
CONTROL SWITCH
THERMAL ELEMENT
CONTROL VALVE
CONVERTER OR GENERATOR
TUBE BUNDLE
HIGH TEMP. WATER TUBE BUNDLE TAKES PLACE OF USUAL FIRE UNDER A BOILER
RETURN WATER OR CONDENSATE
MISC. VALVES AND FITTINGS NOT SHOWN

continuous circulation of water over many years' time.

A water distribution system permits selection of temperature levels to accommodate the particular problem. If the requirements call for space heating only, moderate temperatures to approximately 240 F may be used, and these can be standard low pressure boilers where the pressure limitation is 10 to 15 lbs (psig) for non-licensed engineers. In New York City where the limit is now 10 lbs, the water would be limited to approximately 230 F. Where requirements call for steam supply in any building on the circuit for purposes such as laundry, kitchen or laboratory equipment, a temperature sufficiently high to generate steam at the desired pressure can be selected.

The generation of steam from high-temperature hot water through an unfired heat exchanger eliminates the need of licensed steam plant operators and thereby reduces operating costs. Assume 40-lb steam (psig) is required for a kitchen; to generate it, it would be necessary to have a minimum flow temperature in the system of 315 F; to generate 15 lbs (psig) for laboratory service, 275 F minimum flow temperature would be required.

Hot water heating systems, with modern controls, are the most economical in fuel consumption, since by varying the water temperature circulated, the heating demands can be very closely met and practically all overheating is eliminated. Also, the water has a high heat storage capacity, so that boilers can be fired evenly.

It is of utmost importance to select the proper conduit to house these lines. The piping itself has a life which will be limited internally only by water wear in the pipe and will probably outlast several mediocre conduit replacements. The replacement of the conduit when required should not be delayed to the extent of permitting outside corrosion to destroy the pipe.

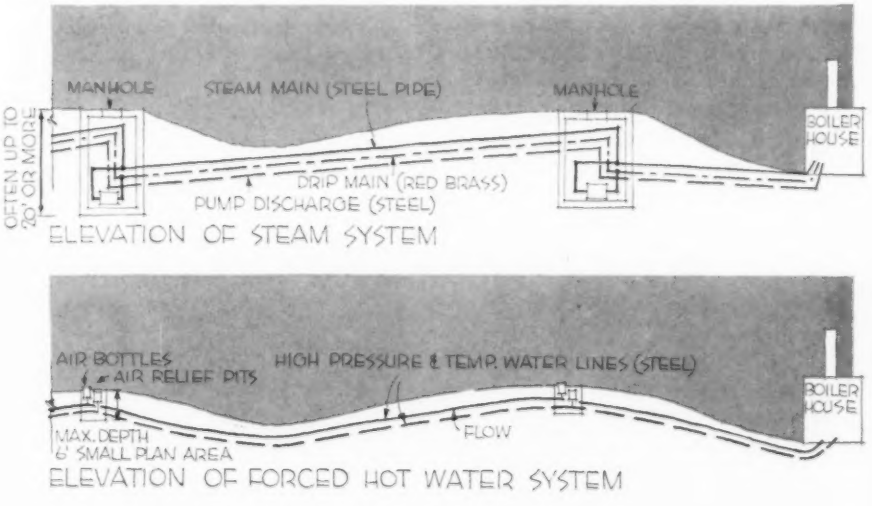
In some localities high-temperature water up to 400 F at 235 lbs pressure or more can be used without licensed engineers.

By using special boilers filled with chemicals, flow temperatures to 550 F or more can be attained without developing any pressure, since the boiler is actually vented to outdoors. A convertor is used wherein this heated chemical is circulated in the coils by a pump, which then heats the water in the storage part of the convertor to the desired temperature of 400 F, or as required, which is then under a pressure of 235 psia or another corresponding pressure for the selected water temperature. However, the convertor being a so-called "unfired vessel" should take that classification, for which codes do not require a licensed operator, although some building or other inspectors may be hesitant on the approval. These are designs for which specialized knowledge is required.

2. The Distribution System at Rutgers

Several years ago Rutgers University started the planning and development of a new campus across the Raritan River from the main campus. The architects are York & Sawyer of New York City, and approximately 14 major buildings are included.

The first permanent structure was the chemistry building. Included in the plans was provision for a conventional steam distribution system with a connection from our original boiler house. Contracts for the chemistry building



Hot water system piping can easily follow the contour of the land—the circulating pump takes care of any changes in elevation. With steam systems, pipe lines must be pitched down in the direction of flow to drain properly, and must be dripped at all low points. Red brass is usually used for drip mains to cut down on the amount of erosion. Red brass for the large steam main would be too expensive

construction were awarded, but installation of any steam provisions was omitted until actually required for the finished building.

During 1948, we became interested in the use of high-temperature hot water for distribution of heat in other than industrial buildings. There seemed to be no reasons why the high-temperature hot water system should not be substituted for our steam system since it would give large savings in first cost, provide maximum flexibility and a life possibly exceeding that of several steam systems or the buildings themselves. The life of a campus being long, these savings can be compounded into tremendous figures, especially if consideration is given to a price index which is constantly increasing.

It became necessary to install a connection from the original boiler house to the chemistry building for heating and for some steam process work. Since we were fully sold on the idea of high-temperature water, one section of the future high-temperature water system was installed between the boiler house and the chemistry building. This section consisted of two 12-in. lines for the high-temperature hot water system and one 3-in. line for a future central compressed air system. One of the 12-in. lines was used temporarily for steam from our existing boilers and the 3-in. compressed air line was used as a temporary pump discharge line returning the condensate to the boiler house.

A convertor, which might be visualized as a boiler without a fire, will be used in the chemistry building. A bundle of tubes containing high-temperature hot water installed near the bottom of the convertor take the place of the usual coal or oil fire. A convertor does not require a fireman, it being entirely automatic but having a trouble alarm line to the boiler house to warn of failure of any control devices. All buildings on the circuit will be equipped with a steam or medium-temperature hot water convertor for each different requirement, which cannot be a subdivision of another requirement.*

The high-temperature water for our project is secured from specially designed, forced circulation hot water boilers using orifices for control of circulation therein. Two forced recirculation boilers, with a maximum output of 750 boiler hp, are being installed in this plant. They are primarily bundles of tubes tied to headers which are connected to expansion tanks remote from these bundles. The tops of these expansion tanks are connected to a central drum above, in which steam is released from the water surface into a space above. The steam feature was added to permit the use of steam turbines for driving the circulating pumps for the boilers and the system which will operate 24 hours every day of the year.

The initial pressure on these turbines is the full system pressure to permit back pressure steam on the turbine exhaust having a temperature sufficiently high to permit preheating the return water from the system. Electric, motor driven units are provided for breakdown service for the turbines. This indicates also that power production is economically possible using this type of system.

The idea of a leak in a high-temperature hot water system has caused some consternation among inquirers. However, accident records seem to indicate that such leaks are more harmless than a leak in a steam line of equal pressure. To flash one lb of steam at atmospheric pressure at a leak point requires roughly 1000 Btu, which must be extracted from the adjoining hot water or the atmosphere which then produces a cooling effect in the immediate vicinity of the break, rather than a terrific scalding effect as it would seem without due consideration. Should a line break somewhere in the field for any reason, the operating engineer in the central plant will know almost immediately, because the lines will begin to thump with any appreciable loss of water.

As this article is written, a second major building, the Institute of Microbiology, is nearing completion. This building will be heated by forced low-temperature hot water with three heating zones off a convertor for 220 F water; a convertor is also provided for 40 lb (psig) steam and another for domestic hot water service.

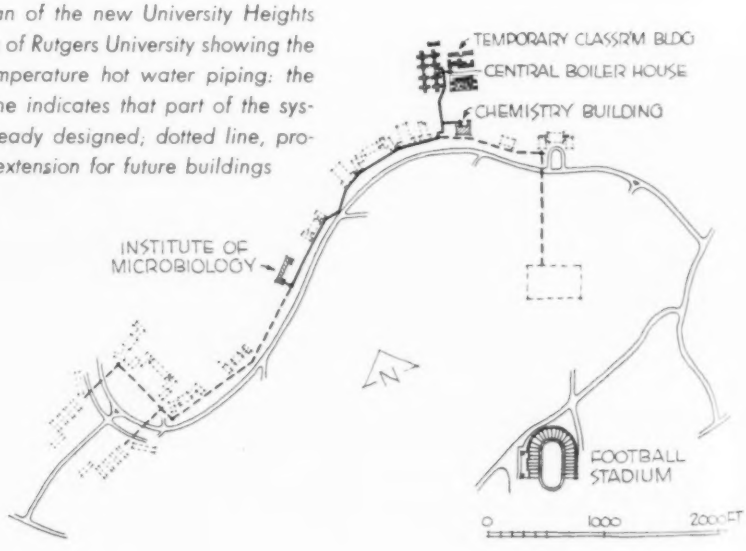
Along with our outside distribution system is a conduit containing wires for an alarm system. Safety devices in each building have connections wired in parallel to one pair of lines from each building going back to the boiler house and connecting to an annunciator. Should any failure occur, the annunciator in the boiler house will indicate some sort of trouble exists in that building. By telephone, an employee can be dispatched to the building to ascertain the trouble.

The mechanical engineering and chemical engineering buildings are already planned, awaiting funds to start construction. Each will contain several convertors to handle a variety of services.

Present plans indicate that our ultimate long circuit supplying the buildings located to the west of the boiler house will be approximately 5600 ft (see sketch). The shorter branch circuit which supplies buildings to the southeast of the boiler house will be approximately 3000 ft.

Our underground system consists mainly of two 14-in. lines while the original short section installed for the chemistry building service is only 12 in. With a steam system, the corresponding line having the same heat capacity as our 14-in. water line, would probably have been 24 or 30 in. because of length of run. These high-temperature water lines along with a 3-in. compressed air line are encased in a casting of insulated concrete on a poured concrete base. The insulated concrete casting is covered with a built-up felt waterproofing.

Plot plan of the new University Heights campus of Rutgers University showing the high-temperature hot water piping: the solid line indicates that part of the system already designed; dotted line, proposed extension for future buildings



Design features proposed by the American Hydrotherm Corp. were incorporated in this distribution system, and the boilers were designed according to their specifications.

Color Television In Medical Education

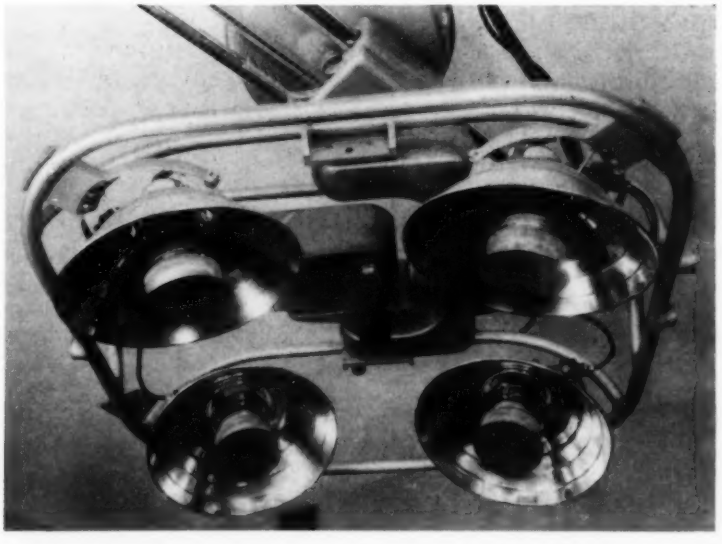
A system of color television developed by the Laboratories Division of Columbia Broadcasting System, Inc. now permits direct, full-color telecasting of surgical operations from operating rooms to teaching rooms and private offices over closed circuits. Distribution of the system in its medical and surgical applications will be handled by the Wilmot Castle Co., which also furnishes special color-balanced operating room lights for the unit.

The color television camera is mounted in the center of a cluster of four of the special lights, suspended over the operating table and focused directly on the operating field. It is operated by remote controls from a booth overlooking the operating room. A technician operates special electronic controls which turn the camera in any direction, narrow or widen the field of view through three separate lenses, and keep the picture in focus. Through the audio portion of the system the operating surgeon can describe the procedure to the audience, which can in turn ask questions. This is made possible by a small microphone and headphone fastened under the surgeon's mask. A separate "silent" audio system permits supervision of an operation being performed by a junior surgeon. The supervising senior surgeon can speak directly to the operating surgeon without anyone else being aware of the conversation.

The scene picked up by the television camera is carried over closed circuits to teaching rooms and doctors' offices in other parts of the hospital where it

(*Continued on page 218*)

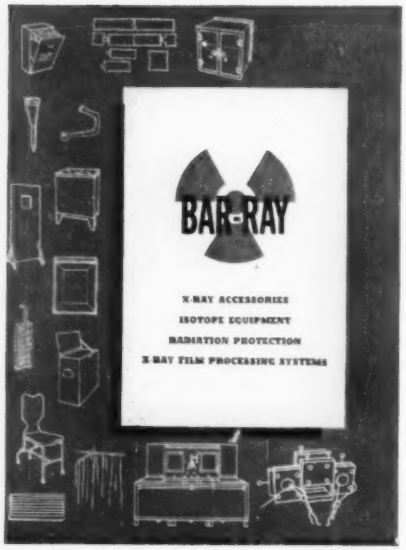
Above: camera, mounted in cluster of lights, photographs operation as directed by technician in booth, who selects lenses, controls color values

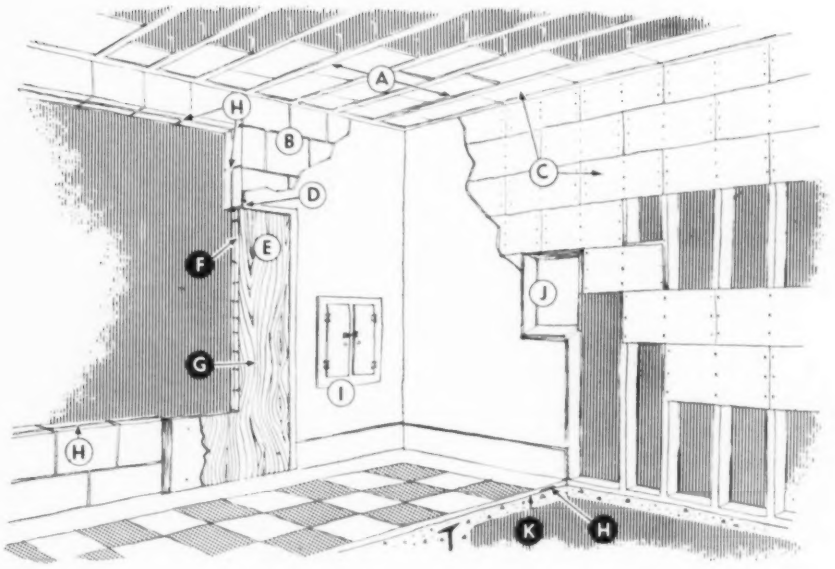


Closeup of fixture shows how camera is mounted in light frame. Lamps are special color-balanced units, designed to permit best possible color

Above: special television receiver designed for use with the new system

LITERATURE FOR THE OFFICE





Above: cover of new X-ray accessories catalog. Right, room equipped with X-ray protective materials: A, lead insulated furring bars; B, lead insulated blocks; C, lead insulated lath; D, lead insulated frame; E, lead insulated door; F, cast lead fasteners; G, face veneer; H, lead overlap; I, lead insulated film cabinet with lead insulated flange; J, operators' window with lead frame and speaking opening

X-Ray Accessories and Radiation Protection

Bar-Ray Catalogue W-52. Comprehensive catalog of the manufacturer's X-ray accessories, isotope equipment, radiation protection and X-ray film processing systems. Includes sections on processing tanks and combination systems, through-the-wall processing systems, special tanks, water coolers, darkroom accessories, temperature controls, shades and special accessories. Also contains information on X-ray and nuclear radiation protective devices, including garments of lead glass fabric, industrial inspection units, radioisotope fume hoods, conveyors and the like. 72 pp., illus. Bar-Ray Products, Inc., 209–25th St., Brooklyn 32, N. Y.*

Stainless Steel Equipment

Just Line Quality Stainless Steel Products. Brochure describes and illustrates various operations in manufacture and fabrication of steel for Government atomic laboratories, hospitals, schools and universities, institutions, industrial plants and home kitchens. Description and photographs of the manufacturer's new plant facilities are included. 20 pp., illus. Just Mfg. Co., 9233 King Ave., Franklin Park, Ill.*

Stainless Steel

Sharon 430 Stainless Steel. Brochure gives data on stainless steel, presenting chemical analysis and typical mechanical and physical properties. Information on fabricating, including forming and bending, spinning, drawing, soldering and cutting, is also included, along with data on polishing, annealing and welding. A list of typical applications is given with accompanying illustrations. 12 pp., illus. Sharon Steel Corp., Sharon, Pa.

Television Installation

Low Loss TV Antenna Accessories, Mosley Catalog 52–53. Catalog contains information on television accessories, with reference to better pictures through more efficient installation. Helpful to architects who wish to specify such equipment for new homes, the brochure gives data on TV lead-ins, couplers, sockets, switches, etc. 8 pp., illus. Mosley Electronics, 2125 Lackland Rd., Overland, Mo.

Electronic Air Cleaners

Trion Electronic Air Cleaners. Brochure describes and illustrates construction and operational features of the manufacturer's electronic air cleaners. Engineering data is furnished and includes capacity cfm efficiency, approximate overall dimensions and approximate shipping weight, together with other information. Suggested specifications are also included. 12 pp., illus. Trion, Inc., 1000 Island Ave., McKees Rocks, Pa.*

Sweet's Issues New Improved Architectural File for '53

Sweet's Catalog Service is currently distributing its 1953 Architectural File. Architects, engineers and contractors in the general building field will find that the new File contains almost a thousand more catalog pages than the '52 issue.

(Continued on page 266)

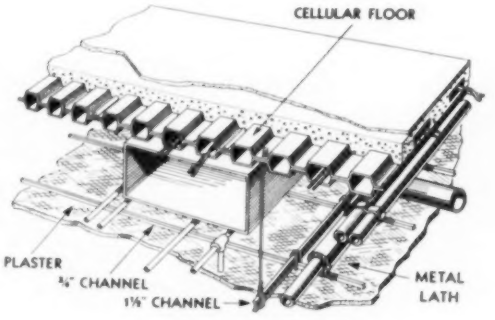
**Other product information in Sweet's Architectural File, 1953.*

METAL LATH MEMBRANE FIREPROOFING–6

Presented through the Cooperation of Metal Lath Manufacturers' Association

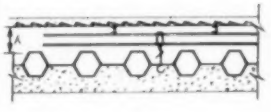
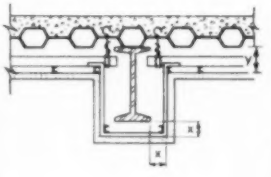
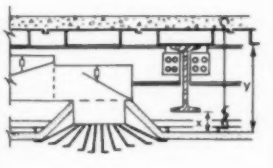
Metal Lath Membrane Fireproofing for Cellular Steel Floors

Constructions listed below are described as tested, including the exact distance of suspended ceilings from beams or floors. However, if the ceiling construction listed below is the equivalent of a ceiling listed with an equal rating for beams, girders and trusses, then, logically, furring channels may be fastened directly to the primary members. Although no tests have been conducted with ceiling furred ¾ in. from beams supporting cellular steel floors, there are several successful tests on attached and furred ceilings protecting beams and joists in other types of floors.



TYPICAL CELLULAR STEEL FLOOR

TABLE F — FIREPROOFING FOR CELLULAR STEEL FLOORS

CONSTRUCTION	DESCRIPTION	FLOOR RATING	BEAM RATING	AUTHORITY
	Floor: 2″ concrete (minimum thickness over cells) Ceiling: ⅞″ gypsum-vermiculite plaster 100:2½, 100:2½ Y = 2¼″ minimum	4-hours		Underwriters' Laboratories Retardant 2689 dated 12/18/39
	Floor: 2″ concrete (minimum thickness over cells) Ceiling: 1″ gypsum-vermiculite plaster 100:2, 100:3 Y = 2″ minimum	4-hours		BMS-92 Table 45 National Bureau of Standards
	Floor: 2″ concrete (minimum thickness over cells) Ceiling: 1″ neat wood-fibered gypsum plaster Y = 9″ minimum	4-hours		
	Floor: 2″ concrete (minimum thickness over cells) Ceiling: 1″ neat wood-fibered gypsum plaster Y = 2″ minimum	3-hours		
	Floor: 2″ perlite concrete Ceiling: 1″ gypsum-perlite plaster 100:3, 100:3 X = 3″ Y = 3″	4-hours	4-hours	Underwriters' Laboratories Retardant 2993 dated 12/9/48
	Floor: 2½″ concrete (minimum thickness over cells) Ceiling: ⅝″ gypsum-vermiculite base 100:2, 100:3 plus ½″ vermiculite acoustical plaster X = 2½″ Y = 7¼″	4-hours	4-hours	Underwriters' Laboratories Retardant 2773 dated 11/29/50
	Floor: 2″ concrete (minimum thickness over cells) Ceiling: 1⅛″ sprayed fiber with beam individually sprayed ¾″ thick X = 2½″ Y = 4½″	4-hours	4-hours	Underwriters' Laboratories Retardant 3431-1 dated 9/14/51
	Floor: 2″ concrete (minimum thickness over cells) Ceiling: ⅞″ gypsum-perlite plaster 100:2, 100:3. Tested with openings for non-combustible ducts and electrical outlets, not exceeding 100 sq in. of openings per 100 sq ft of ceiling X = 3½″ Y = 15½″	4-hours	4-hours	Underwriters' Laboratories Retardant 3355 dated 4/30/51
	Floor: 2″ concrete (minimum thickness over cells) Ceiling: ⅞″ gypsum-vermiculite plaster 100:2, 100:3. Tested with openings for non-combustible ducts and electrical outlets, not exceeding 100 sq in. of openings per 100 sq ft of ceiling. This test was arbitrarily stopped at 3-hours, long before failure X = 3½″ Y = 15⅜″	3-hours	3-hours	Underwriters' Laboratories Retardant 2689 dated 12/13/49

In every plant, office building, institution and the like . . . on every ship—there is an unseen labyrinth of pipes and ducts. These lines carry ice water, steam, cold air, hot water, gases and liquids of many types—drawn from furnaces, boilers, condensers or tanks. Every unit in such a system requires *insulation*—to keep cold away from heat or heat away from cold.

A major development of recent years is a new method of holding the insulating materials securely and lastingly in place — a *lagging* adhesive—a time- and money-saving substitute for the over-sewing of the covering material. Such an adhesive must be fire-retardant, must resist repeated heating and cooling, humidity, steam and water.

Developed to meet certain shipbuilding specifications during World War II, Arabol Lagging Adhesive is today the primary specification in major shipbuilding yards—as it is in major factories, power plants, office buildings, institutions, hotels and apartment houses. (Let us send you illustrated Booklet LR.)

This important type of adhesive is but one of 10,000 adhesives formulas developed in Arabol Laboratories over the past 68 years. We operate on the belief that, *for each particular adhesives application, there is one adhesives formula that can serve you best.*

We invite the opportunity to submit samples for you to test in your own plant—under your particular working conditions—for your specific requirements, whatever their nature. That is the one kind of testing that assures you of satisfactory results. Your inquiry to Department 68 will bring a prompt response.

Adhesives? **ARABOL!**

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STAINLESS STEEL—5

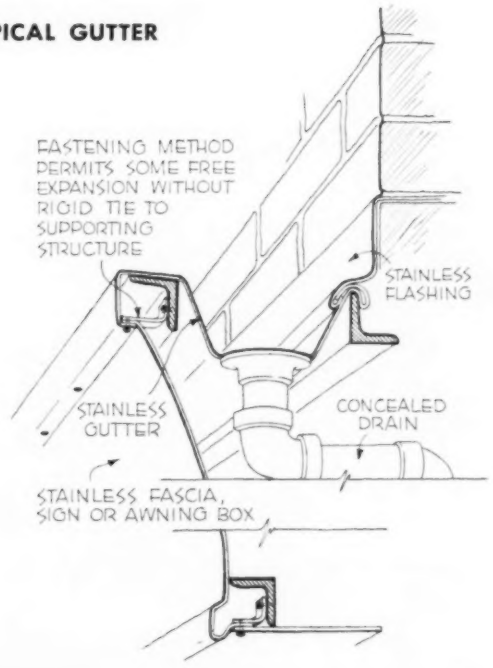
Presented through the Courtesy of the Committee of Stainless Steel Producers, American Iron and Steel Institute

Effects of Weather on Exterior Surfaces

Like glass, stainless steel, when it gets dirty, shows the dirt, but its smooth surface is easy to clean. Designs should include precautions against accumulation of unsightly dirt, as well as take advantage of natural rain washing in most climates. When relatively clean water, uncontaminated by rusty iron drippings, flows over stainless steel it does not increase maintenance requirements, but may aid appearance.

Rusty dirt-ladened water should be diverted before it reaches important visible areas. Internal drains like the one sketched here will help assure cleanliness.

TYPICAL GUTTER


FASTENING METHOD PERMITS SOME FREE EXPANSION WITHOUT RIGID TIE TO SUPPORTING STRUCTURE
STAINLESS FLASHING
STAINLESS GUTTER
CONCEALED DRAIN
STAINLESS FASCIA, SIGN OR AWNING BOX

Display Window Glass Framing

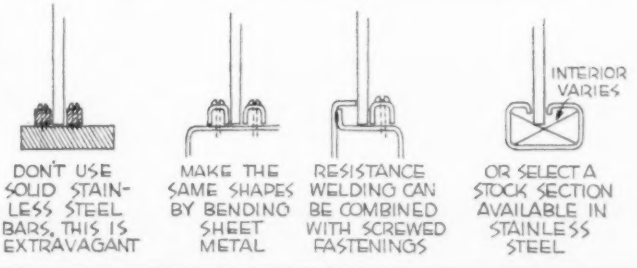
Architectural metal work derives many antecedents from carpentry. These historical ties have too tight a hold when solid bars of stainless steel (as big as 1 by 5 in.) are assembled like wooden boards to make a window sash. This has actually been done, and incidentally, looks fine.

Adopting traditions of the cabinetmaker but working out the details more economically, many designers assemble brake-bent sections of stainless steel to build simple, rectangular sash and mullions. More resilient construction results from the use of sheet metal. This has an advantage in that the glass is cradled somewhat against shock, vibration, thermal strain, etc.

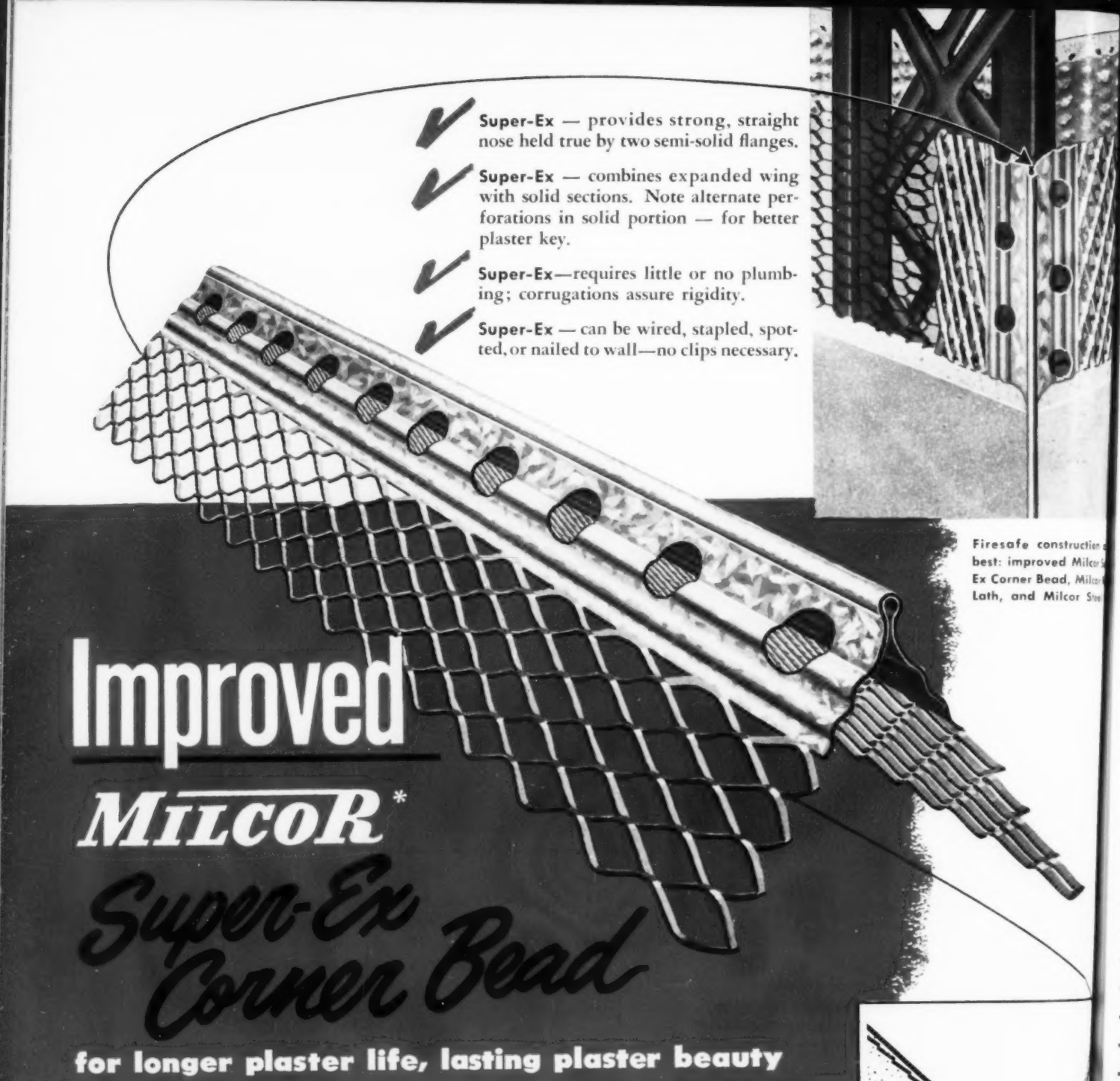
It is possible, if desired, to retain the conventional spirit of milled woodwork (which has been copied for some time in the non-ferrous metal trim), and yet employ an efficient, economical, functional component. Modern stock store-front sections in stainless steel are available in many designs. Cross-sections range from simple rectangles to beaded moulding shapes. Units are designed for convenience of installation and glass setting as well as for resilient support.

Future design developments may be anticipated: using stainless steel for its mechanical properties, without regard for historic customs, designers will certainly evolve some improved components. Greatest advantages may grow out of designs that require more work of a mass-production nature in factories and less hand work at site.

TYPICAL WAYS OF INSTALLING GLASS


DON'T USE SOLID STAINLESS STEEL BARS, THIS IS EXTRAVAGANT
MAKE THE SAME SHAPES BY BENDING SHEET METAL
RESISTANCE WELDING CAN BE COMBINED WITH SCREWED FASTENINGS
INTERIOR VARIES
OR SELECT A STOCK SECTION AVAILABLE IN STAINLESS STEEL

Internal designs of type at right vary among manufacturers



- **Super-Ex** — provides strong, straight nose held true by two semi-solid flanges.
- **Super-Ex** — combines expanded wing with solid sections. Note alternate perforations in solid portion — for better plaster key.
- **Super-Ex**—requires little or no plumbing; corrugations assure rigidity.
- **Super-Ex** — can be wired, stapled, spotted, or nailed to wall—no clips necessary.

Firesafe construction at best: improved Milcor Super-Ex Corner Bead, Milcor Lath, and Milcor Steel

Improved MILCOR* Super-Ex Corner Bead

for longer plaster life, lasting plaster beauty

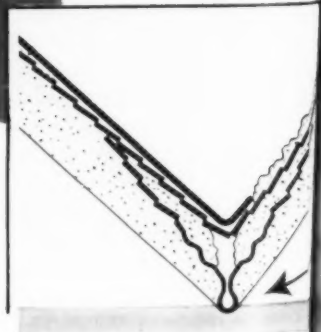
—now provides for greater depth of plaster adjacent to the bead — regardless of the plaster grounds!

Improved Super-Ex Corner Bead, with its exclusive design, combines the rigidity of a solid wing with the added plaster reinforcement of expanded metal.

Super-Ex wings are formed at a minimum angle of 60° (max. 70°) for spring fit on a 90° corner, and easy adaptability to specified plaster grounds, whether ¾", ⅝", or ½".

Milcor Super-Ex goes on fast . . . reduces erection costs . . . protects corners against cracking, chipping . . . assures straight, true-edge beauty.

Standardize on Super-Ex in your specifications.



Here's why Super-Ex corners are last longer: note greater depth of adjacent to bead area . . . spring adapts easily to any specified plaster ground — whether it be ¾" or ½" . . . and solid metal that corner at point of greatest strain.

Write for Catalog No. 252 today

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STAINLESS STEEL—6

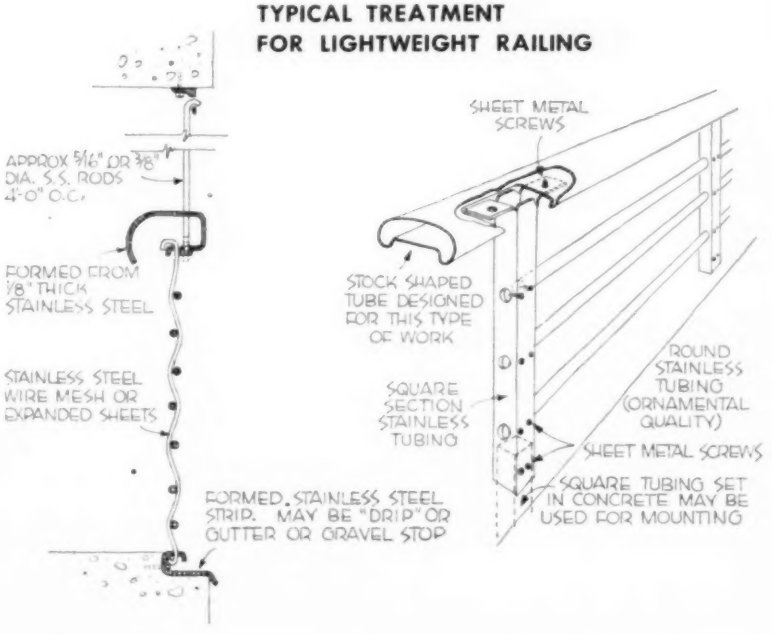
Presented through the Courtesy of the Committee of Stainless Steel Producers, American Iron and Steel Institute

Formed Tubing

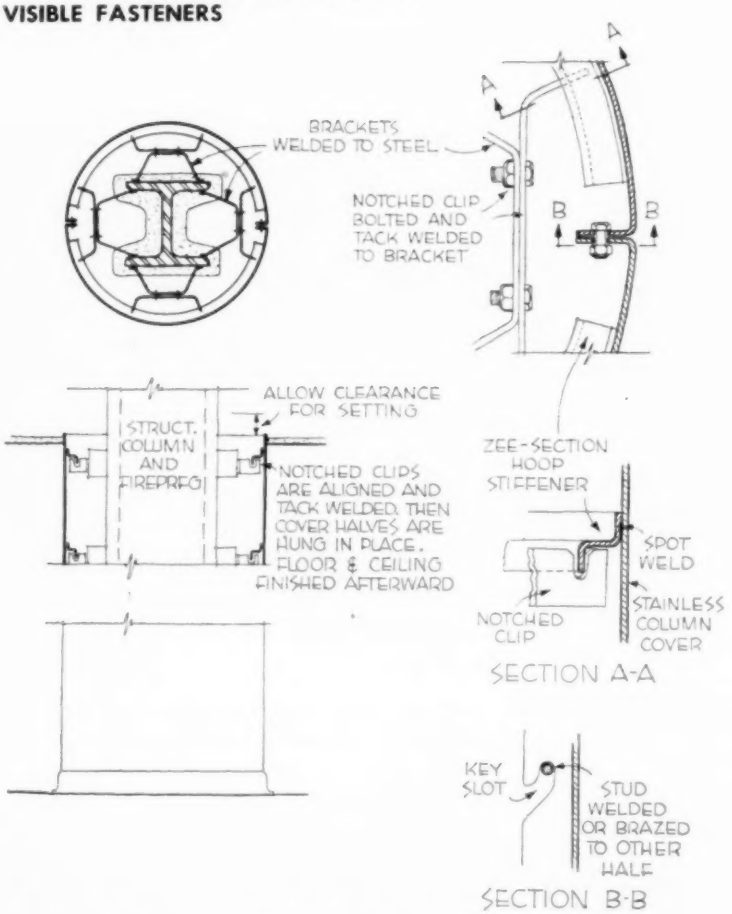
It would be uneconomical to specify solid stainless steel members for railings, struts, built-in furniture and the like. Parts of this kind, designed to look solid, are usually made from stainless tubing shaped into the desired cross section. Suppliers of stainless steel architectural tubing have tools for producing a tremendous variety of special-purpose cross-sectional shapes.

Joining methods that can be used with this tubing include spot welding, fusion welds (ground smooth and polished), nuts and bolts, sheet metal screws, etc.

TYPICAL TREATMENT FOR LIGHTWEIGHT RAILING


APPROX 5/16" OR 3/8" DIA. S.S. RODS 4'-0" O.C.
FORMED FROM 1/8" THICK STAINLESS STEEL
STAINLESS STEEL WIRE MESH OR EXPANDED SHEETS
FORMED STAINLESS STEEL STRIP. MAY BE "DRIP" OR GUTTER OR GRAVEL STOP
SHEET METAL SCREWS
STOCK SHAPED TUBE DESIGNED FOR THIS TYPE OF WORK
SQUARE SECTION STAINLESS TUBING
ROUND STAINLESS TUBING (ORNAMENTAL QUALITY)
SHEET METAL SCREWS
SQUARE TUBING SET IN CONCRETE MAY BE USED FOR MOUNTING

TYPICAL COLUMN COVER WITHOUT VISIBLE FASTENERS



Column Covers With Invisible Fasteners

Structural columns that encroach on pedestrian traffic are frequently given stainless steel sheathings. At building entrances or set-back storefronts, in lobbies and in public rooms, the stainless cover can give a neat appearance, and eliminate painting or other periodic refinishing problems.

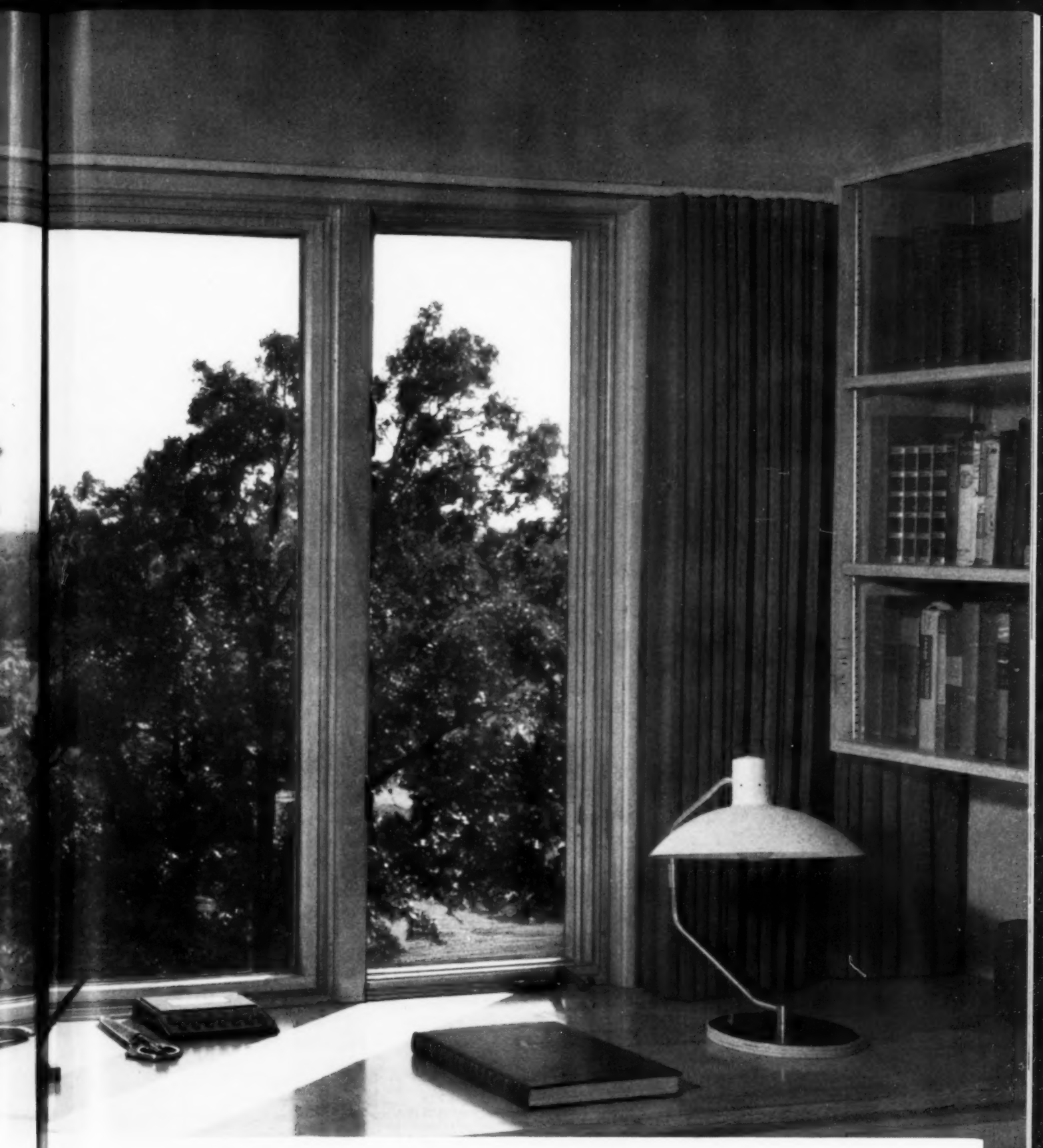
Sometimes column covers show exposed screw heads; sometimes screws are concealed by snap-in moulding strips. Jobs are also frequently designed with a hairline joint, with no visible indication of how it is secured.

Most of the concealed fasteners for such members are variations of a wedging or "keyhole" slot. If the sheathing consists of several separate panels, the accessible panels may first be screwed or bolted to a suitable framework. However, the pieces that "go on last" are treated differently. During installation they are lifted slightly, then lowered into place over hooks or studs of some kind. Finish plastering of ceiling and floor occurs after this operation. Because of this, the stainless cover cannot be removed without destroying enough plaster to free it.

Andersen Casements now also available in sash width 4½" wider than illustrated here

For built-in beauty and comfort...

ANDERSEN *Windowalls*®



A CHANGING PICTURE of nature's beauty always greets the home owner at this desk. Architects Thorshov & Cerny, Inc., planned it that way, when they specified a WINDOWALL—an Andersen Casement Picture Window Unit. They planned for comfort, too. Andersen WINDOWALLS are famous for their beauty as windows, famous for their weathertightness when they serve as wall sections. They're made of beautiful, *insulating* wood.

*TRADEMARK OF ANDERSEN CORPORATION

Andersen Corporation BAYPORT • MINNESOTA

WINDOW SPECIALISTS FOR 50 YEARS

Write for Detail Catalog or Tracing Detail File; or see Sweet's files for specification data. WINDOWALLS *sold by millwork dealers.*

(*Continued from page 191*)

coefficients of utilization* for the three systems shown. The higher the upward component of light the greater the coefficient of utilization suffers when poor room conditions prevail as shown. Since luminaires with open reflector tops have better maintenance factors than when tops are closed, the number of units required does not increase in proportion with the coefficient of utilization.

System 12 shows up with the lowest first cost of the three systems compared at 75/50. It is much lower in cost than System 15 at 30/10 and reasonably close to System 5. Further study shows System 12 with lowest maintenance costs. This analysis indicates that lighting systems with 10 to 15 per cent uplight are a better buy than systems without any uplight and, of course, such systems provide more comfort.

When comparing equivalent two-lamp units of 75-w slimline and 40-w fluorescent (System 3 vs. 4, Group I and System 9 vs. 10, Group II) it is seen that 75-w slimline systems are about 10 per cent lower in first cost than 40-w fluorescent systems. It is likely that the trend will continue to favor slimline lamps for factory applications. Closed end reflectors were used in the analysis. For open end reflectors (Groups I and II) the first cost values may decrease by approximately 10 per cent.

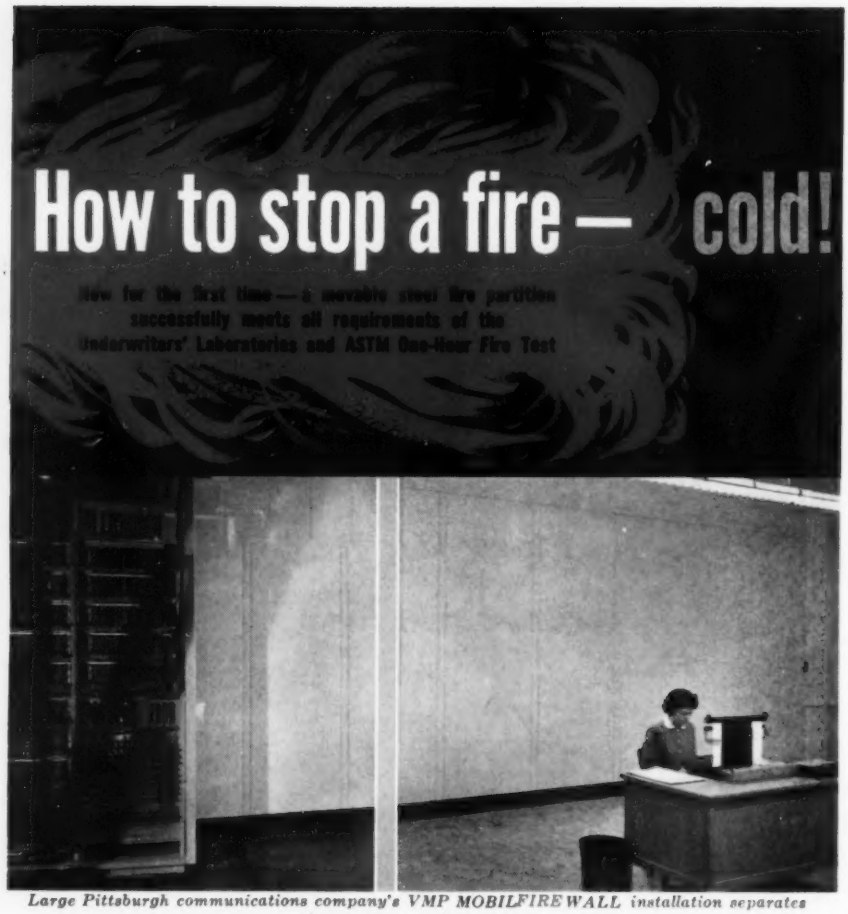
Operating Cost. A close examination of Table I will disclose the importance of good room finishes in considering economics with luminaires providing upward light. If the three Systems (5, 12 and 15) used in the above discussion on first costs are compared, it will be seen that operating costs are reasonably close for a 75/50 room. For a 30/10 room Systems 5 and 12 are approximately the same while there is a very marked increase for System 15. Very often maintenance costs are seriously considered in the operation of a lighting system. This takes into account washing of reflectors and labor in replacing lamps. System 12 takes first place for low maintenance costs compared with Systems 5 and 15.

Recommended Applications

100 Ft-candles. Levels of 100 ft-candles are recommended by the *I.E.S.*

** Coefficient of utilization = total light received by working plane total lamp output.*

(*Continued on page 210*)


How to stop a fire — cold!
How for the first time — a movable steel fire partition successfully meets all requirements of the Underwriters' Laboratories and ASTM One-Hour Fire Test

Large Pittsburgh communications company's VMP MOBILFIREWALL installation separates fire secure area from offices.

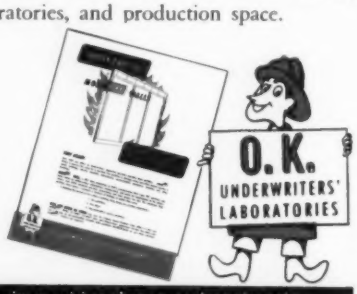
VMP MOBILFIREWALL

The Only Underwriters' Approved and Labeled One-Hour Movable Steel Fire Partition

Specify VMP MOBILFIREWALLS, and you can design and re-design your clients' fire secure areas in accordance with their changing needs. You effect substantial savings for your clients by enabling them to re-locate their VMP MOBILFIREWALLS without new construction costs. They secure savings, too, in prevention of dust damage to their equipment.

An exclusive development of Virginia Metal Products Corporation, the nation's leading designers, manufacturers and erectors of movable steel partitions, the VMP MOBILFIREWALL interlocks with VMP standard steel MOBILWALL partitions to provide highly flexible space utilization of fire secure areas combined with offices, laboratories, and production space.

FREE: MOBILFIREWALL brochure, complete with detailed drawings, which fully describe these labeled one-hour movable steel fire partitions. Write Department AR-2, Virginia Metal Products Corporation, 1112 First National Bank Building, Pittsburgh, Pennsylvania.



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Pacemaker to progress in partition design and engineering

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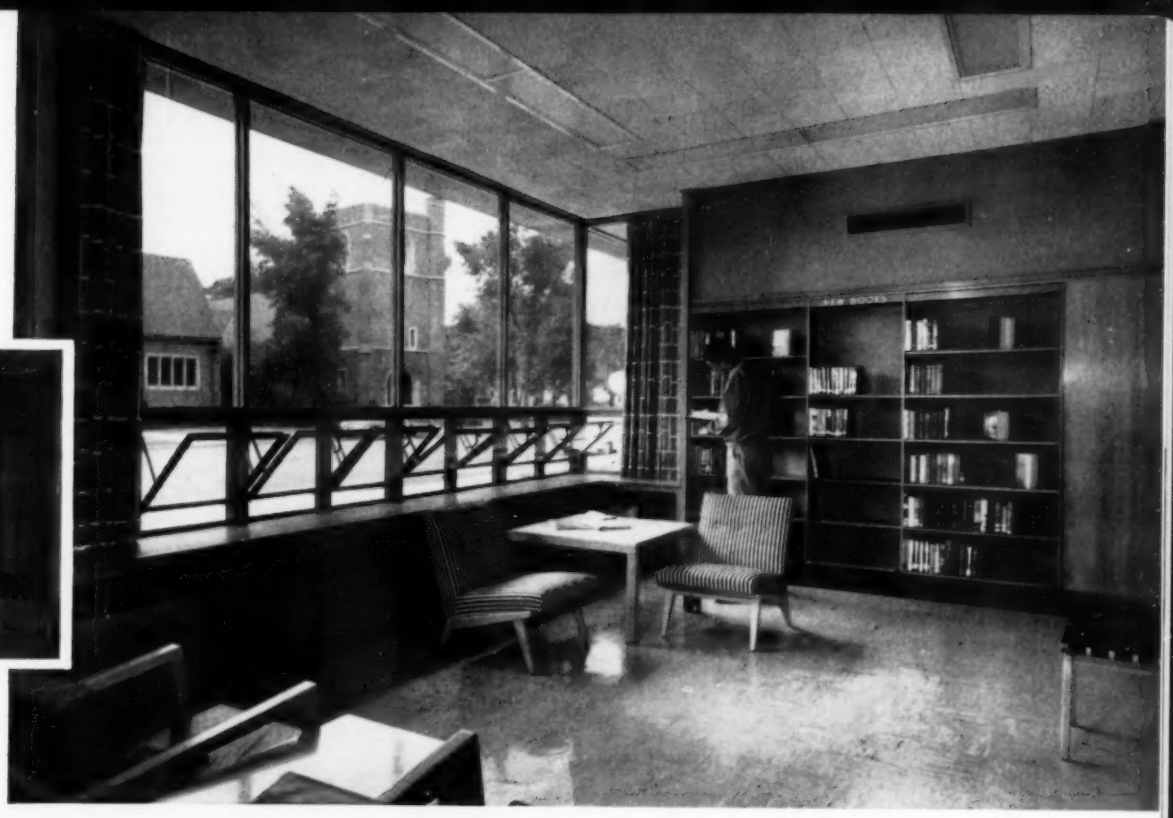
PLANT: ORANGE, VIRGINIA

also leading manufacturers of steel doors and frames, library stacks and equipment, and conveyors for vertical and horizontal transmission.

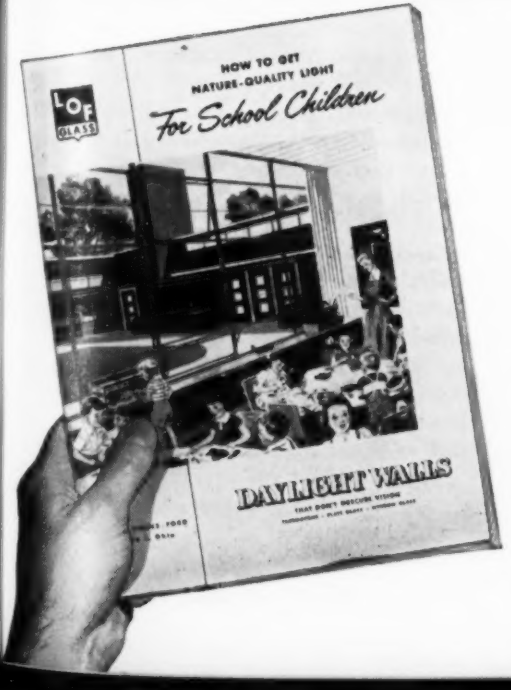
rchitects Holabird & Root & Burgee Chicago, used *Thermopane* Day-ht Walls for the Wilmette Public rary, Wilmette, Illinois.



te the confining effect when Hola-d & Root & Burgee's design has n retouched to show what opaque ls would do to the library.

Loebl, Schlossman and Bennett of Chicago specified walls of *Thermopane* for Lucien Lelong Inc. The salon now has a living mural. It also has thermal insulation for winter and summer, acoustical insulation, plus natural daylighting, sunshine, and a great feeling of freedom—the joy of not being "cooped up".

Wouldn't it have been a loss to wall out the daylight, sunshine, view and the sense of spaciousness?



NEW BOOK ON DAYLIGHTING SCHOOLS—*FREE*

TO ARCHITECTS AND LAYMEN CONCERNED WITH SCHOOL DESIGN

This 24-page, beautifully illustrated book contains the latest scientific studies in school lighting; a clear, brief presentation of data from *Recommended Practice*, and photographs of new schools in all sections of the country showing how architects have achieved nature-quality light in classrooms. The book also contains a great deal of data on school design and materials which any architect will be glad to have close at hand. Send coupon today for your copy.

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Please send me free copy of HOW TO GET NATURE-QUALITY LIGHT FOR SCHOOL CHILDREN.

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MODERN AS TOMORROW IN DESIGN AND LIGHTING EFFECT
PEER-LITE fixtures offer great flexibility. Pattern Planning is unlimited—you can form T, H, □, +, I... any design you wish.
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SEE HOW VERSATILE PEER-LITE IS:
Any louver or glass diffuser you may wish can be supplied: GrateLite*, eggcrate, Albalite, Flutex, Optilux, also prismatic lens bottoms.
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THE EDWIN F. GUTH CO. • ST. LOUIS 3, MISSOURI

INDUSTRIAL LIGHTING

(*Continued from page 206*)

Recommended Practice of Industrial Lighting, for "very difficult" and "most difficult" seeing tasks. For seeing comfort at these levels, luminaires in Group III, with 30 to 50 per cent upward light, are essential. Naturally, room conditions must comply for good brightness patterns. Ceilings should be white having a minimum reflectance of 75 per cent; walls 50 per cent; with light finishes on machines, bench tops, floors, etc., in accordance with *I.E.S. Recommended Practice*.

50 Ft-candles. Where levels of illumination are prescribed at 50 ft-candles for "difficult and critical seeing tasks," luminaires of Group III for certain applications may prove desirable. Other applications may find luminaires of Group II satisfactory. The choice between these two groups will depend upon the specific seeing task and the normal viewing angles at which such tasks are viewed. For instance, where prolonged viewing is normally near or above the horizontal line of sight, Group III is suggested. Where the line of sight is substantially below the horizontal, Group II may be suitable.

High reflectance room and equipment finishes are just as important in applications of 50-ft-candle systems as for the 100-ft-candle bracket. Obviously, economics will have a direct bearing on the selection of the ultimate luminaire chosen for either of the two groups.

30 Ft-candles. Where levels of illumination in the 30-ft-candle bracket are prescribed for "ordinary seeing tasks," luminaires in Group II with 10–15 per cent upward lighting will find their greatest application. While it is desirable to have light colored room and equipment finishes where Group II luminaires are used, it may not always be possible to achieve this goal in factory practice.

Lower than 30 Ft-candles. In areas where "casual seeing tasks" are performed, say a 10-ft-candle bracket, luminaires in Group I with all downlighting may be permissible. This, however, is based on the fact that at such low levels, luminaires are widely spaced and overhead lighting will result in a "spotty" lighted ceiling. It does not

(*Continued on page 215*)

(*Continued from page 210*)

necessarily follow that these luminaires are most desirable. Group II luminaires "maintain" better because of the "draft" action afforded by the open slots. The same reasoning may be applied to areas where "rough seeing tasks" are performed in the 5-ft-candle bracket.

Supplementary Lighting. Where luminaires are used for supplementary lighting below or slightly above the horizontal line of vision, Group I may be found desirable. However, where luminaires are mounted substantially above the horizontal line of vision for purposes of supplementary lighting, the Group II luminaires may be desirable due to better maintained lighting values. There are numerous seeing tasks that require illuminations levels from 200 to 1000 ft-candles or more. Localized lighting units of varying designs are available for incandescent and fluorescent lamps. They should be applied to supplement general lighting where the higher illumination levels are required at the point of seeing.

Economics is not just a matter of dollars and cents from the standpoint of installed costs or operating costs. Return on investment is part of the economic story and a very important one. Naturally, plant conditions have a bearing on type of lighting equipment to be installed.

If luminaires with high upward light (Group III) are used, ceilings must be painted white and kept white by repainting at proper intervals. Plant operators are aware of the many problems involved in the repainting of large ceiling areas with overhead trusses, pipes, ducts, etc., and on the floor a congestion of machines, all of which must be carefully covered during the process of repainting. Moreover, this repainting cannot be done any old time and certainly not during production hours.

Yet, if ceilings are not properly maintained with Group III (high uplight) luminaires, as much as one-third of the light may be lost by absorption should room finishes deteriorate from 75/50 to 30/30. Luminaires in Group II with moderate upward light are affected far less by room finishes and, therefore, are preferred when the conditions mentioned above are a matter of concern to management.

IN MORE AND MORE SCHOOLS, IT'S EDWARDS!

Thousands of schools, coast to coast, run smoother, easier, thanks to Edwards.

In California, for example, 14 new schools recently joined the hundreds now using Edwards Automatic Clock and Program Control Systems.

Most recent was Menlo-Atherton High, an outstanding example of modern architecture. Among the others are College of Notre Dame, Belmont, Waverly School, Stockton, Frank Homan School, Fresno, and Brentwood School, East Palo Alto . . . all in California.

Edwards Automatic Clock and Program Control Systems are precision-built to give long, trouble-free service year after year. No mercury pendulums, rectifiers, condensers or troublesome radio tubes complicate their operation. The clock itself is handsome, functional . . . harmonizes perfectly with any type of architecture. Accurate sweep second hand, silent movement, no annoying tick each minute.

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TRANSLUCENT FIBER GLASS PANELS

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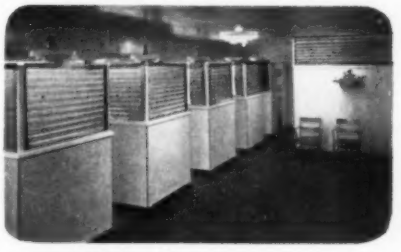
homes...for skylights, window walls, patio roofs, awnings, shower stalls, etc. Ideal indoors and out.



commercial...for store fronts, office partitions, luminous ceilings, decorative effects, signs.

industrial...for unlimited daylighting ...skylights, side walls, etc. No framing needed.

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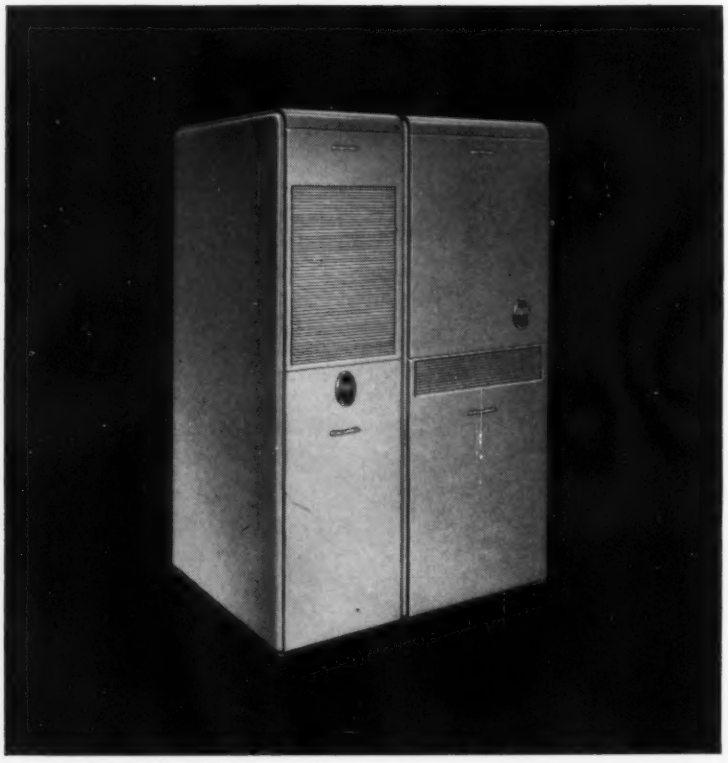
Now . . . you can give home buyers

bryant's new "Command-Aire" Twins

practical, attainable

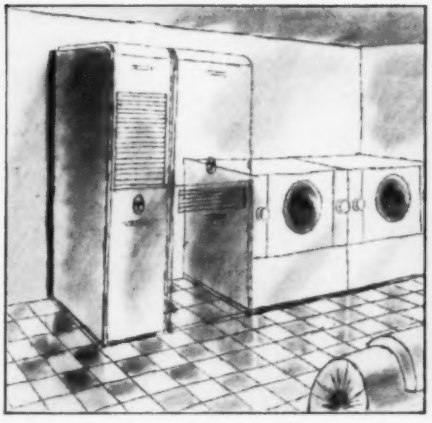


Year 'round comfort . . . or the early "prospect" of it . . . is going to sell a lot of new homes this coming season. It's a feature home buyers want, and for two reasons: First, for the added enjoyment it provides; second, for the extra value it adds to the home should the owner have to sell in the next few years.

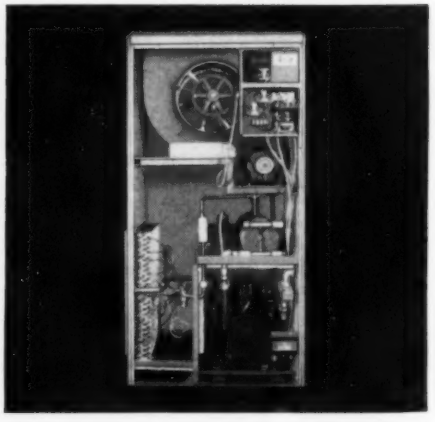
Now, with the introduction of Bryant's "Command-Aire" Twins, builders can offer this sales-clinching feature in *all* of their homes. Thanks to Bryant's mass-production techniques, they can offer summer cooling for 30% to 50% less than heretofore . . . or, let the purchaser add cooling later. Either way the buyer gets a big "plus" and think what this can mean in the profitable selling of homes.

bryant® *means business...*

Unusually compact design permits hide-away installations of the "Command-Aire" Twins—in closets or alcoves . . . in utility rooms . . . in basements. Requires a minimum of 7⅔ sq. ft. of floor space (actually less than twin sanitary tubs).



Use one cooling unit . . . sell 100! By installing the "Command-Aire" Twins in their model homes and leaving space for the cooling unit in the others, builders can offer "year 'round conditioning" in *all* their houses without additional investment.

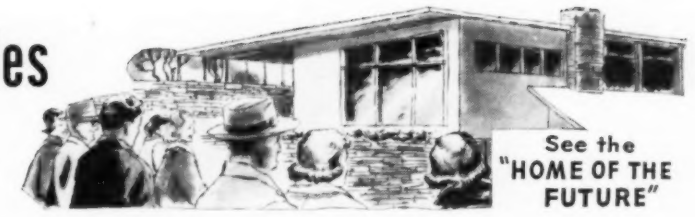


Air conditioner is independent unit with its own blower, air filter and controls. This eliminates need for air to pass through both units, improving both heating and cooling efficiency—and making for hushed operation. A Bryant "exclusive" in low-cost equipment.

"the home of the future" today!

make year 'round conditioning

by average-income families



Bryant's "Command-Aire" Twins, as you might guess, are *matched* heating and cooling units. Each operates separately, or they may be used together. And you can use *gas* or *oil* for heating, as both types of forced air furnaces are available. You also have a wide range of furnace sizes to choose from . . . as well as 2, 3 and 5-ton capacities in the summer conditioning units.

You will want to get all the facts on this new Bryant equipment as it can add to *your* profits in 1953. You'll be interested also in Bryant's supporting program to help builders sell their houses. Ask your Bryant Distributor to give you the details . . . or write Bryant Heater Division, 17825 St. Clair Avenue, Cleveland, Ohio.

Sales magic! Year 'round comfort conditioning at prices even "GI home buyers" can afford, can be real sales magic for builders in '53. They will get bigger crowds, more interested prospects, easier-to-sell customers . . . and make more money on their houses.

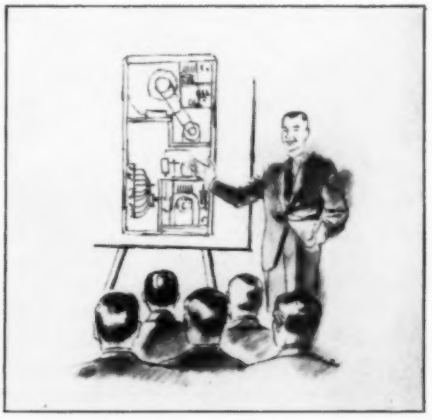
National advertising will pre-sell Bryant "Command-Aire" year 'round conditioning to millions this spring and summer, also carry the names of leading builders who are featuring "Command-Aire" installations in their homes this year.

Local promotion and publicity can tie the builder into the big national advertising program. We'll help prepare the material and get it into local papers. The "Command-Aire" Twins are "news"— news *builders* can use to advantage.

better business for builders

Five-year warranty on the hermetically sealed compressors of the 2 and 3-ton "Command-Aire" Cooling Units has tremendous appeal to home buyers. They will also appreciate the fact that factory-trained experts are close at hand.

"On-the-site" selling helps, especially developed for use by builders, will point up the extra comfort—extra value—of year 'round conditioning, also the many advantages of a "Command-Aire" installation to home buyers, both today and tomorrow.



Sales Training is another important feature of Bryant's new "Command-Aire" program. Qualified representatives are available to aid builders' salesmen in selling summer cooling most effectively. This can add substantially to builders' profits.

PRODUCTS
(*Continued from page 195*)

can be observed by physicians and students. It is reported that the new system permits many more students to observe operations closely and carefully than was possible in the operating amphitheatre, where they must be seated a considerable distance from the operating table, and where the view is frequently blocked.

Color television equipment has been installed at the University of Chicago, the University of Kansas and the University of Pennsylvania. An installation is also in operation in Europe. The complete camera and control equipment is a compact package about one-fourth the size and volume of present-day monochrome studio equipment. The system can be used to advantage in teaching other medical procedures besides surgery, including diagnostic techniques and psychiatric interviewing Wilmot Castle Co., Rochester 7, N. Y.

Distinctive * Inexpensive

Eichler Homes, Palo Alto, Cal. Arch. F. E. Emmons and A. Q. Jones, Los Angeles, Cal.

CABOT'S STAIN WAX

Gives interior woodwork a rich penetrating stain effect combined with a soft lustrous wax finish — all in one easy, low-cost application. Brings out full beauty, grain and texture.

VARIETY OF CONTEMPORARY COLORS

Modern blond shades, many available from no other source — *Glacier Blue, Seashore Gray, Ivory, White* or *Natural*. Also traditional dark shades . . . *Maple, Mahogany, Walnut, Redwood*. For unusual effects, White and Natural can be tinted with colors in oil.

Write Today for Cabot's Stain Wax Color Card and complete information. **Samuel Cabot Inc.,** 229 Oliver Bldg., Boston 9, Mass.

* Cabot's Stain Wax

Compact Coffee Maker For Restaurants

The *Koffee King*, a compact automatic coffee maker for restaurants, hotels, institutions and the like, employs a system of instantaneous water heating which eliminates the need for large storage urns. The coffee is made from

Small-size coffee maker uses a concentrate, heats water instantaneously

a concentrate. Tea, chocolate and instant soups can also be made with the continuous supply of hot water furnished by the device, which requires a direct connection to a cold water line and a 115 or 220 v 60 cycle A.C. electrical outlet. The cabinet is made of stainless steel, is 18½ in. high and takes up less than a square foot of counter or table space. Simplicity of design is reported to make cleaning easy. Indevco Inc., 806 E. 141st St., New York 54, N. Y.

New Equipment for Architects' Offices

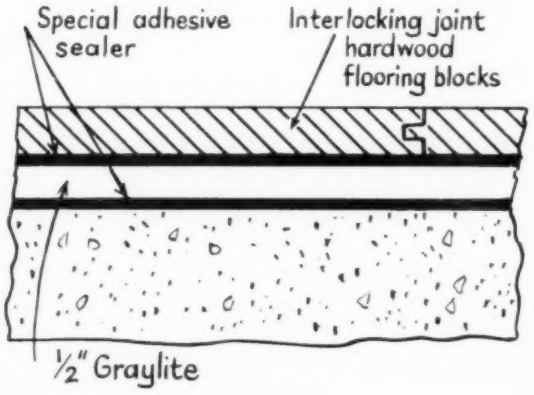
Two new pieces of *Scott-Rice* equipment for the architect's office have recently been marketed. One of these is a custom-built tube file for storing tracings and drawings up to 60 in. long. The file may be fitted to an entire safe or to a portion of a safe. It may also be fitted into custom-built wood cabinets to match executive office decor. The file has a patented rocker base which tilts forward, and tubes may be indexed for immediate location of any item.

The manufacturer's new drafting table has a warp-resistant clear sugar pine top with steel and cleats for positive, true edge. The undercarriage is of fully aged, selected hardwood. Rigidity is reportedly insured by heavy leg bolts. Scott-Rice Co., 610 S. Main St., Tulsa 3, Okla.

(*Continued on page 222*)

sweating problems and Graylite base!

2. Big 4-foot Graylite sheets are lightweight, clean and easy to handle. Can be cut quickly and easily with fiberboard knife or saw. Available in 6′ to 12′ lengths.



Want more information? Have your secretary send a card or letter to Technical Service Department, Insulite, Minneapolis 2, Minnesota. No obligation.

INSULITE AND GRAYLITE ARE REG. T.M., U.S. PAT. OFF.

3. Second coat of adhesive-sealer is applied directly over Graylite, providing a double moisture seal. Graylite is moisture-resistant . . . it's waterproofed with asphalt.

4. Interlocking joint blocks go on evenly over smooth Graylite base. Double seal, plus waterproofed Graylite, keeps moisture away from flooring . . . floors lie flat, won't buckle.

Build and insulate with double-duty

INSULITE

Made of hardy Northern wood

INSULITE DIVISION,
Minnesota and Ontario Paper Company, Minneapolis 2, Minnesota

PRODUCTS
(*Continued from page 218*)

Reversible Chalkboard With Tilted Surface

Described as a new conception in chalkboard design, the *Vers-A-Tilt* unit chalkboard-tackboard features a tilted surface which eliminates all glare from natural or artificial light. The tilt construction is also reported to help reduce writing fatigue and to promote penmanship, since the student can assume a natural writing position. The chalkboard can be reversed and used as a tackboard whenever desired, thus eliminating extra expenditures for permanent tackboards which are only to be used part time. The space behind the board can be used for storage of art materials, maps, papers and similiar items.

A further feature of the new unit is its easy adaptability to changing unit heights. The entire unit can be shifted up or down 10 in. in multiples of 1 in., thus permitting a room to be reaccommodated quickly and easily for higher and lower grade students without requiring major alterations.

Tilted surfaced chalkboard can be reversed, has storage space behind board

Each of the units is completely assembled and packaged at the factory and is ready for installation. Only four fastenings are required for installation and as a result installation costs are reduced. The units are self-supporting and do not require grounds, adhesive, trim or backing. By combining a series of units, chalkboards for various required lengths can be assembled. Chalk troughs and display rails are furnished in continuous lengths to accommodate any multiple of units, and each unit is furnished with two combination map hooks and paper clips.

The complete unit weighs only 22 lb and is available with either green or black chalkboard on one side and tackboard on the reverse. Unit dimensions are 3 ft long, 3 ft 2 in. high, with a projection from the wall of $2\frac{1}{2}$ in. at top and $12\frac{1}{2}$ in. at base. Claridge Equipment Co., 1608 W. 20th St., Chicago 50, Ill.

New Hardware Products

Additions to their hardware lines have been announced by two manufacturers:

• The *Challenger Series*, a new group of low-cost hangers and tracks for rolling doors of up to 70 lbs, has been added to the Har-Vey line. Three hanger and track models are reported to handle all requirements for doors up to this weight. The series is available in completely packaged sets of hardware and track for standard size doors, with

(*Continued on page 226*)

Beautiful...

IT WILL INSTANTLY APPEAL TO THE MOST DISCRIMINATING

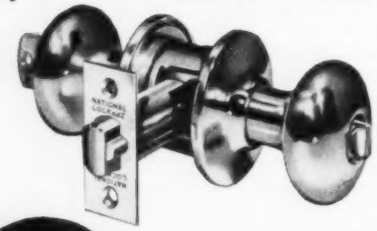
Series "410"

NATIONAL LOCK*set*

PATENT APPLIED

Dignity of Styling... Lasting Finishes

Complementary to every type of architecture, the new NATIONAL LOCKset has about it an expression of good taste that universally appeals. Its gleaming mirror-like finishes are long-time protected by lasting baked-on varnish. Speed of installation... exclusive protective features... selected materials... and skilled craftsmanship make NATIONAL LOCKset the most talked about product in the building field today. Write for catalog.



No. 411D Key Lock (exterior)
No. 412 Turnbutton Lock (porch, patio)
No. 414 Privacy Lock (bathroom, bedroom)
No. 418 Knob Latch (interior passage)

DISTINCTIVE HARDWARE... ALL FROM 1 SOURCE

NATIONAL LOCK COMPANY

ROCKFORD • ILLINOIS

MERCHANT SALES DIVISION

HERE'S paper and pencil proof that you can cut costs with PlyScord—and get a far better job, too. Remember, the full story of construction costs isn't shown on the bill of materials. It's the *applied cost* that counts. That's why you can save up to $2.50—*and more*—per square with PlyScord. Prove it yourself. Figure it *both* ways on the chart below.

Estimating Chart to Cover 1,000 Sq. Ft. of Roof Area

Data Developed from Walker's "The Building Estimators' Reference Book"

PLYSCORD*	RATE	TOTAL	LUMBER	RATE	TOTAL
1,056 sq. ft. 3/8" or 5/16"			1,200 ft. b.m. 1x8 shiplap		
Nails 6d-12 lbs.			Nails 8d-20 lbs.		
Carpenter 6 Hours			Carpenter 11 Hours		
Helper 3 Hours			Helper 5 Hours		
TOTAL COST IN PLACE.....			TOTAL COST IN PLACE.....		

***FHA now accepts 3/8" PlyScord over rafters 24" o.c., 5/16" PlyScord over rafters 16" o.c. Write Douglas Fir Plywood Association, Tacoma, Wash. for application data.**

PLYSCORD®

GRADE FIR PLYWOOD

This registered trademark identifies PlyScord—the economical construction grade of Interior fir plywood bonded with highly moisture resistant glue. This stamp on panel is your assurance of tested quality.

® Douglas Fir Plywood Assn., (DFPA)

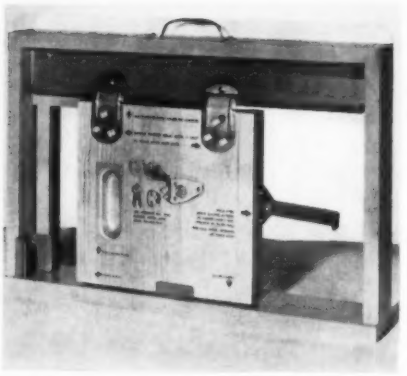
In test above 3/8" PlyScord on 24" span easily withstands 500 lb. concentrated load. Plywood's great two-way strength means economy because relatively thin panels can be used—3/8" PlyScord on rafters 24" o.c. easily withstands uniform load of 30 lbs. p.s.f., 5/16" on 16" span takes uniform load of 40 lbs. p.s.f. Both constructions now FHA accepted.

PlyScord holds nails well. Tests on roofs exposed 2 years show minimum force of 85 lbs. required to pull cedar shingle from 5/16" PlyScord. In case of asphalt shingles, roofing is invariably torn from PlyScord without loosening nails. Other tests and actual experience shows 5/16" PlyScord holds nails as well or better than 1" soft pine boards.

Roofing materials go down faster over solid PlyScord sheathing. Factory seasoning assures dimensional stability. PlyScord won't shrink or swell like boards to damage roofing. Roofing lays flat, stays flat. PlyScord roof sheathing adds strength and rigidity, acts as a structural diaphragm in resisting loads caused by high winds, earthquakes.

PRODUCTS
(*Continued from page 222*)

everything needed for installation, including a plastic flush door pull. The track is an extrusion of rust-proof aluminum, top mounted for quick installation without mortising and V-grooved to prevent roller noise. The nylon rollers glide on self-lubricating Oilite bearings which, reportedly, never need maintenance. Hangers are of cadmium-plated ribbed steel. Side mounted models are adjustable. Metal Products Corp. of Miami, Miami, Fla.



Left: low cost hanger and track series for sliding doors. Right: set designed especially for side doors in garages

• The *Sterling* No. 890 Sliding Door Set is a packaged hardware set for sliding side doors in home garages. It may also be used for sliding doors in workshops, storerooms and similar locations. The set includes side-mounting track, adjustable hangers, door guides, back stop and flush pulls. Advantages cited for sliding side doors in the garage include freedom of placement and the fact that the door can be made as wide as necessary to accommodate large equipment easily. The set is designed to be used with the manufacturer's no. 1025 sliding door lock. Sterling Hardware Mfg. Co., 2345 W. Nelson St., Chicago 18, Ill.

Humidity Conditioner Used For Concrete Test Laboratory

In the Portland Cement Association's recently completed $3 million research and development laboratory in Skokie, Ill., an unusual problem in humidity control was encountered. In the laboratories it was necessary to simulate as closely as possible the wide variety of humidity and temperature conditions which concrete and concrete block would be subjected to normally. Because of this, it was necessary to produce, among other things, extremely low humidities, particularly in the laboratory where concrete block specimens were to be tested. Here specimens are subjected to tests under varying humidity conditions ranging from 25 to 80 per cent R.H., but with a constant room temperature of 75 F. Utilization of refrigeration equipment for cooling moisture out of the air in order to produce

(*Continued on page 232*)

ROMANY TILES
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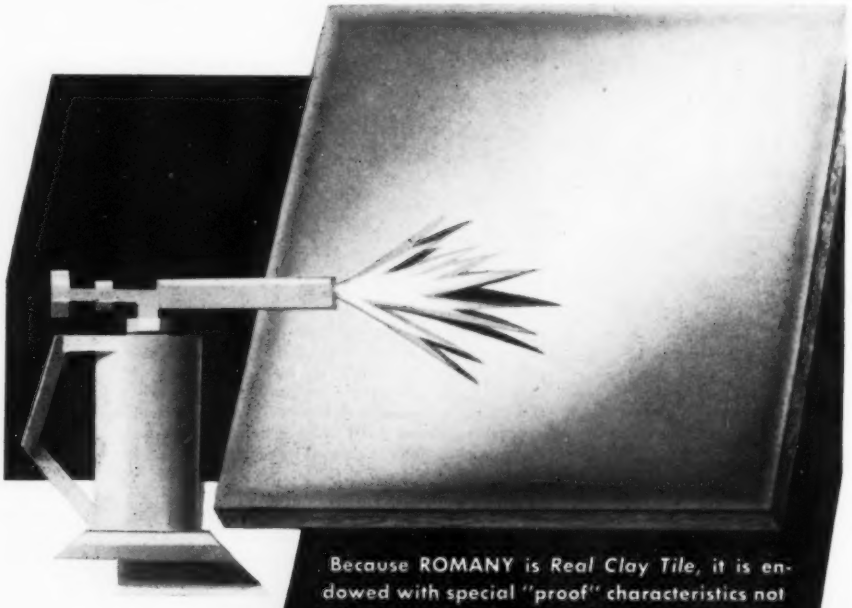

Because ROMANY is *Real Clay Tile*, it is endowed with special "proof" characteristics not to be found in metal or plastic substitutes. There is no painted surface, no body structure, to invite and sustain combustion. ROMANY is *fireproof*, an advantage of special importance in structures designed to be fireproof.

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D-251 Piston Damper Operator

V-103 Diaphragm Coil Valve

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T-900 Master Thermostat

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Comfort and health for Toronto Western Hospital patients are constantly guarded by Johnson Automatic Temperature and Humidity Control. The seven Johnson-controlled, central plant ventilating systems serve operating rooms, nurseries, obstetrical rooms and other vital areas.

Weather-compensated, "Master-Submaster" Control accurately maintains the exact water temperature, as determined by the outdoor temperature, for the radiant heating and cooling panels.

Because it is *pneumatically* operated, Johnson Temperature Control meets the most exacting hospital safety requirements. It is completely safe—even in the presence of explosive anesthetic gases! Johnson Humidity Control provides further protection by guarding against the dangers of static electricity.

Regardless of the type of building—hospital, school, office building or factory —ask an engineer from the Johnson continent-wide staff to talk over the desirable features and savings of a Johnson-engineered Control System. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

JOHNSON *Automatic Temperature and Air Conditioning* **CONTROL**

MANUFACTURE • APPLICATION • INSTALLATION • SINCE 1885

PRODUCTS
(*Continued from page 226*)

low humidities was ruled out on grounds of (1) expense, (2) maintenance difficulties connected with the operation of the equipment at the near-freezing levels which would be required to produce low humidities at the specified constant room temperature, and (3) possible interference with tests of more than short duration because of (2). Finally the problem was solved with the installation of a 2500 cfm air capacity *Kathabar* humidity conditioner, a chemical absorbent-type unit. This unit reportedly creates laboratory room atmospheres of 25–45 deg relative humidity for as long a period of time as required.

In operation of the unit, air to be dehumidified is passed through a spray of lithium chloride-base absorbent solution, while at the same time passing over cooling coils, which in this case contain 75 deg city water. (The air-moisture removal capacity of the solution increases as the temperature of the cooling medium is decreased and/or the rate of flow of the cooling medium is increased.) The dehumidified air is then passed over refrigeration cooling coils to reduce the air temperature to that necessary to maintain desired conditions in the laboratory. Function of the entire system, once it is set to deliver the required air conditions, is continuous and automatic. Since 1800 cfm of the 2000 cfm capacity of the unit is recirculated air, operation of the equipment is made more economical. Surface Combustion Corp., Toledo 1, Ohio.

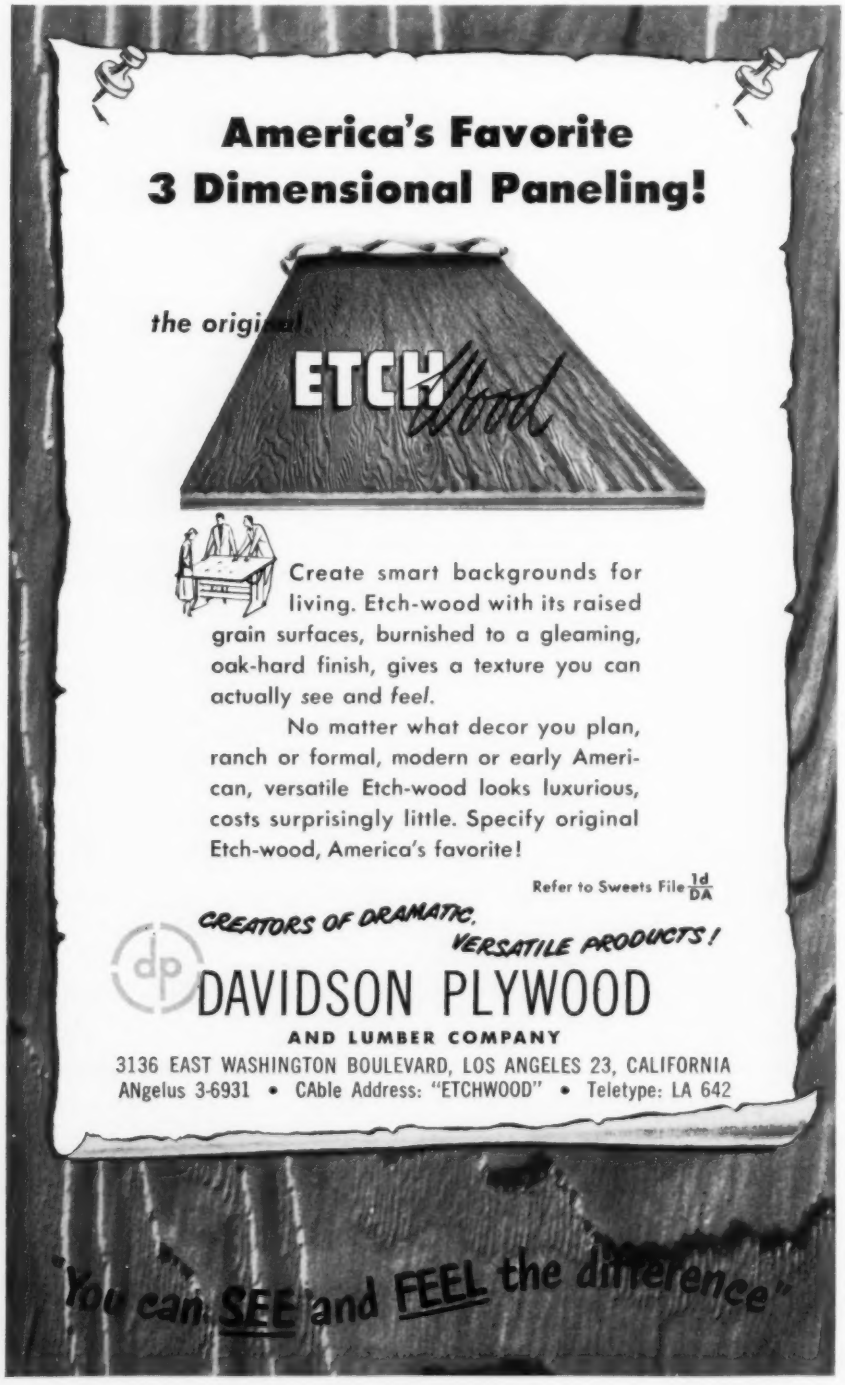
Humidity conditioner shown here meets strict requirements of concrete test lab

"Heat Curtain" Employed For Industrial Plant

A heating system designed for the new plant of the Tool Steel Gear and Pinion Company at Sharonville, Ohio, and employing *Drave Counterflo* direct-fired heaters, features a unique "heat curtain." This "curtain" prevents cold air and wind from entering the building when a large shipping door is opened. The door leads directly into the main building and must be opened frequently to permit passage of trucks inside. To prevent discomfort to employees, a trench 24 by 24 in. with a floor level outlet 2 in. wide was installed parallel with the door. This trench blows warm air upward to form a curtain of heat that compensates for any heat which might be lost ordinarily when the door is opened.

Designed by the company's own plant engineer, the system is automatic in operation. A by-pass duct from the building's heating system leads to the trench. Opening of the overhead rolling automatic door by-passes the thermo-

(*Continued on page 236*)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"PC Light-Directing Glass Blocks help us create an ideal office environment"

IN designing the new office building of the Art Metal Construction Company at Jamestown, New York, a good visual environment was one of the requirements which Architects Raymond A. Freeburg and Sherrill F. Lindquist, of the firm of Freeburg and Lindquist, had to meet. To be certain of the illumination levels that could be expected with the use of light-directing glass blocks, the engineers of Art Metal and the architects consulted illumination experts at the Pittsburgh Corning Daylighting Research Center. Utilizing the architects' plans, the newly developed PC Daylighting Nomograph was used to predict the daylight illumination levels in the proposed office building.

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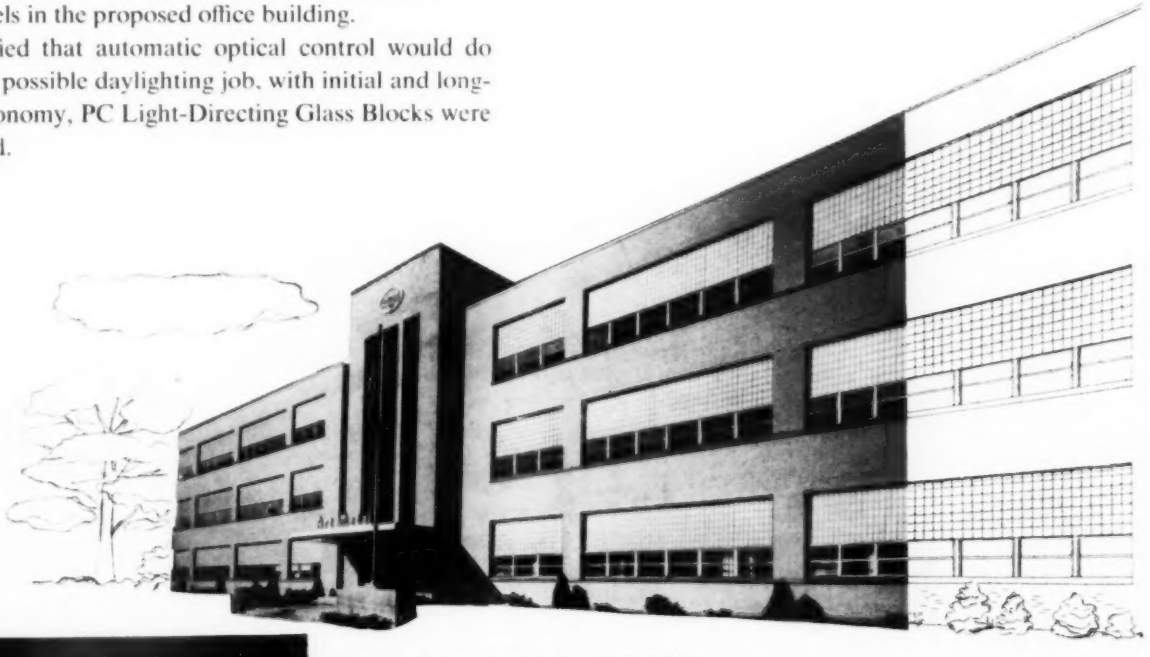

Architects: Freeburg and Lindquist, Jamestown, N. Y.
General Contractor: Warren Construction Company, Jamestown, N. Y.

Pittsburgh Corning Corporation

PITTSBURGH 22, PA.

Pittsburgh Corning Corporation
Dept. C-23
Pittsburgh 22, Pa.

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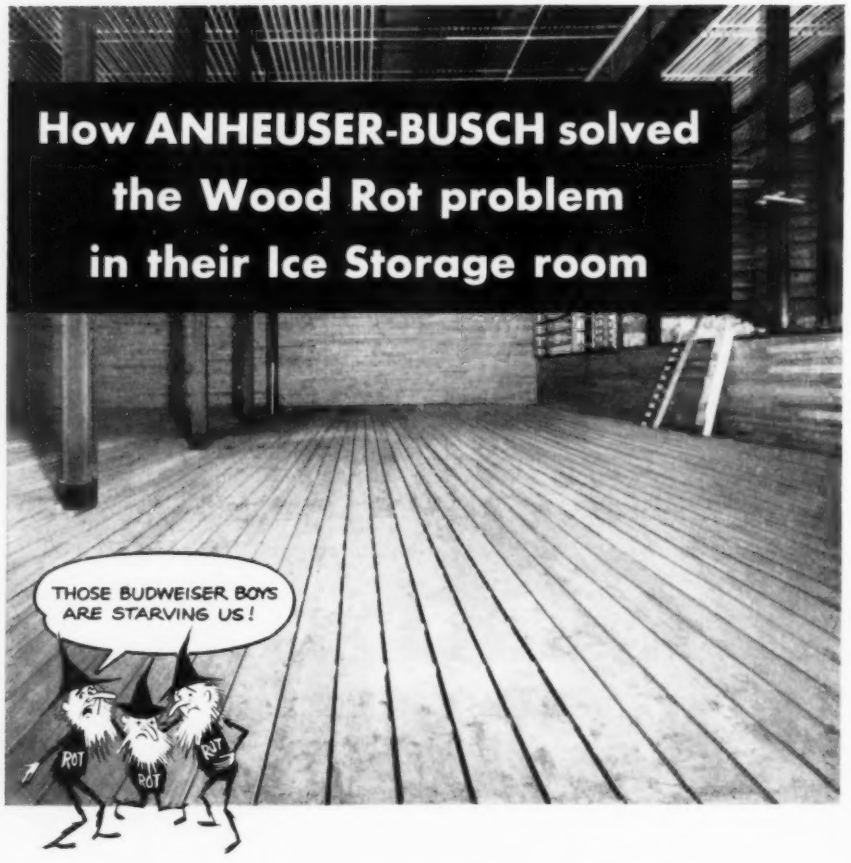

• In 1937, Anheuser-Busch Incorporated faced a problem common to all companies who operate cold storage rooms. They had to reline an ice storage room with a material which would have the same insulating properties as wood and would resist rotting and deterioration when alternately wet and dry.

So—they lined the entire ice storage room with "Wolmanized"* pressure-treated Southern pine. Now, according to Mr. H. Becke, Plant Refrigeration Engineer, the wood in this ice room is "as good as the day it was put in."

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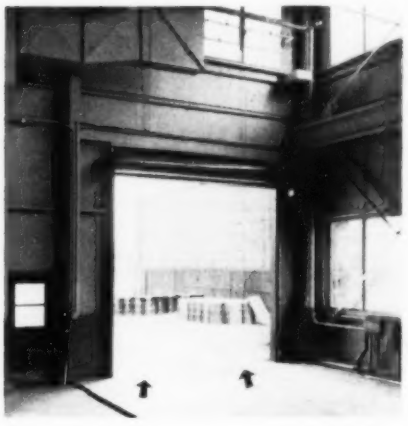
see our CATALOG in SWEET'S FILE ARCHITECTURAL

Wolmanized PRESSURE TREATED **Lumber**

PRODUCTS

(*Continued from page 232*)

stat and opens a damper which directs warm air into the trench duct. When the door is closed, this warm air flow is shut off or diverted elsewhere. In addition to blocking out cold air, the heat curtain prevents the pavement under the doorway from icing during winter weather.



Trench duct (arrows) throws up "heat curtain" to prevent drafts from open door

Heat for the entire plant, which has a floor area of 23,400 sq ft, is supplied by two Dravo heaters with an output of 1,500,000 Btu per hr each. Except in the coldest weather one of these heaters can heat the building adequately. Burners for the units use either oil or gas and the units are described as being entirely self-contained. Dravo Corp., Dravo Bldg., Pittsburgh 22, Pa.

Indoor-Outdoor Dining Accessories

Multi-Serve, a new idea in barbecue entertaining, has recently been introduced to the market. Designed by Tony Paul, and built around a 24 by 24-in. module, the set consists of empty metal frames of two sizes into which can be placed various accessory serving panels. Among the units is a barbecue, equipped with a roasting spit and white enamel pots on movable arms. The pots can be swung over the fire pit to cook or

(*Continued on page 242*)

biggest hotel built anywhere in 20 years

Architects and Engineers:
Holabird & Root & Burgee, Chicago, Ill.
Associate Architect: William B. Tabler.
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FIAT, and only FIAT has solid wood cores (see inset) between two sheets of steel in the pilasters where superior strength is needed. This is an exclusive feature in the Aristo Ceiling Hung and the Aristo Floor Supported Compartments. Other FIAT exclusives are new theft proof screws, concealed type fastenings, and newly designed chrome-plated hardware parts. FIAT compartments are made of the finest stretcher-leveled furniture steel, either cold rolled or bonderized-galvanized. They are finished with a primer coat and two coats of baked-on durable enamel in white or any combination of eight colors, producing a beautiful two-tone effect.

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PRODUCTS

(*Continued from page 236*)

switched back to be kept warm over individual burners.

A bar unit includes red and white enamel containers for ice and bottles and two removable "trees" for glasses.

Serving units can be used alone or in combination with others for entertaining

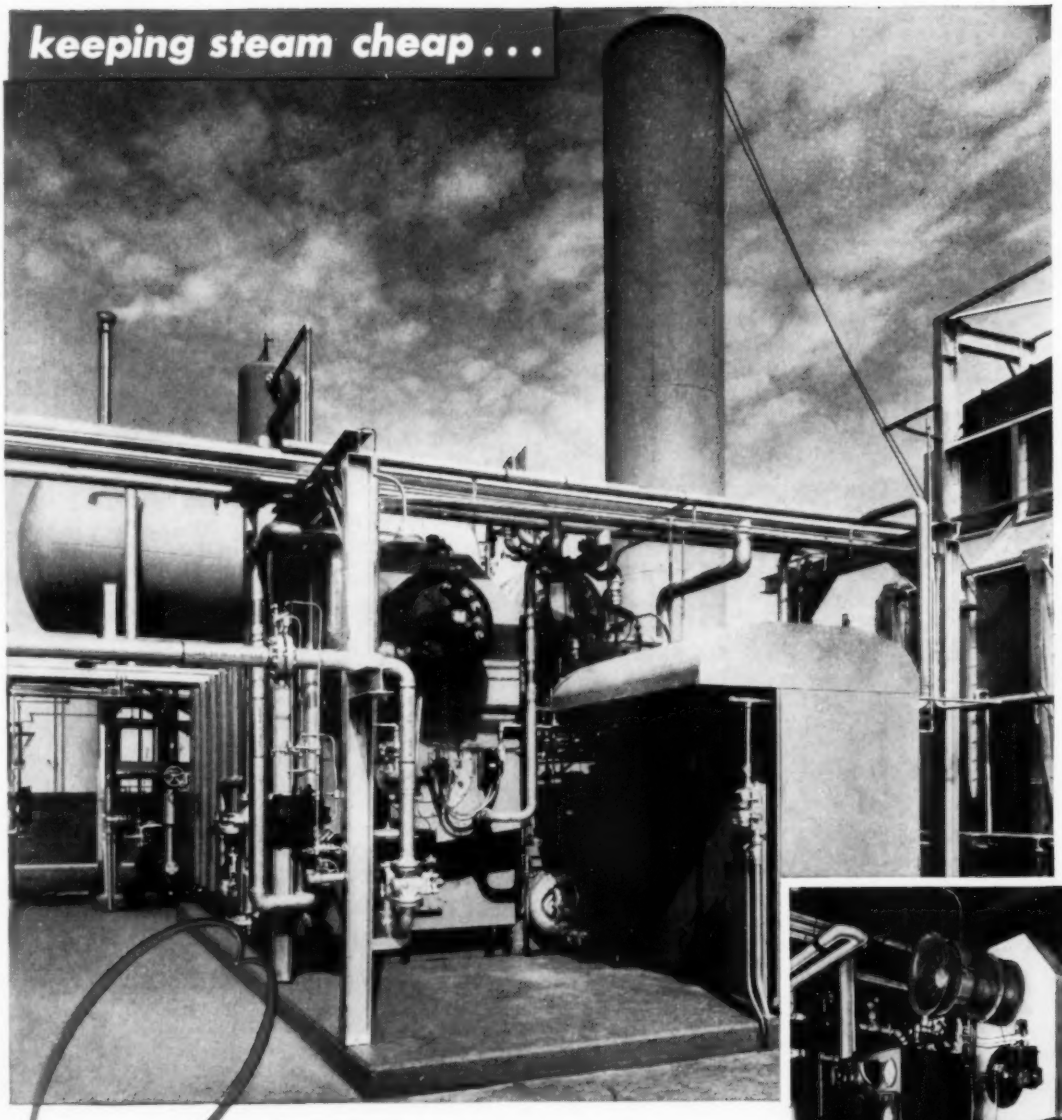
A flatwear and bread unit has a birch working surface, above which is suspended a double-decker wire bread cradle, a trough for holding plates and red canvas slings for silverware. The units are all 24 in. sq and may be used alone in the frame or any two combined in a double sized frame. Richards Morgenthau Co., 225 Fifth Ave., New York, N. Y.

Knob-Operated Damper For Baseboard Covers

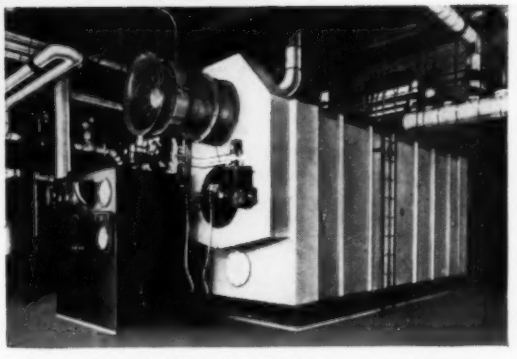
Now available as regular equipment with *Vulcan Radi-Vector* baseboard radiation covers is a new knob-operated damper which cuts off convection heat for the amount of radiation of each damper unit. This permits only radiation heat to be given off, and serves to reduce the temperature in one room without affecting the comfort balance in the rest of the house. A simple flip of a plastic control knob operates the spring-lever damper. Vulcan Radiator Co., 26 Francis Ave., Hartford 2, Conn.

(*Continued on page 244*)

keeping steam cheap . . .



Outdoor installation of shop-assembled B&W Integral-Furnace Boiler, Type FM at a large Texas refinery.



Conventional indoor installation uses a minimum of valuable space.

Outdoors as well as indoors SAVE with the B&W Integral-Furnace Boiler, Type FM

Outdoor installation of the shop-assembled, *B&W Integral-Furnace Boiler, Type FM,* is an important cost-saving advantage that is gaining wide popularity with users in all sections of the country. A high percentage of units sold to date are for outdoor operation under year-round weather conditions.

A completely water-tight, rigid steel casing encloses the entire boiler and furnace of this compact B&W steam unit. Designed to permit proper expansion and contraction of the unit's various components resulting from seasonal temperature fluctuations, the casing is welded for additional strength and tightness. A blanket of mineral wool plus over-all high-temperature insulation of walls, floor, and roof, minimizes heat loss through radiation.

For installation outdoors or indoors, this versatile, self-contained B&W steam generator is available in steam capacities ranging from 2900 to 28,000 lb per hr, at pressures between 15 and 250 psi. Total steam capacity of units now in service and on order for over 50 different industries, utilities, and other users here and abroad exceeds 5½ million lb per hr.

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Write for Bulletin G-76, for an illustrated, detailed description of the many other cost-saving features of this unique unit. The Babcock & Wilcox Company, Boiler Division, 161 E. 42nd St., New York 17, N. Y.

G-586

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Architectural Engineering

PRODUCTS

(*Continued from page 242*)

Bronze Weatherstripping

Kel-eez, an all-metal bronze weatherstrip, attaches directly to either wood or metal door frames and is held in place by a special adhesive guaranteed to hold indefinitely. No nails, screws or other hardware are required, and installation reportedly can be made in less than two minutes. The strip is

Bronze weatherstrip requires no hardware for installation on doors, windows

said to fit flat against the door frame, with no sharp edges to snag or tear.

The strip consists of a flat base piece $1\frac{3}{8}$ in. wide with rolled edges supporting a thin gage tempered bronze insert which bows out approximately $\frac{1}{4}$ in. from the base strip when the door is open. As the door closes, the flexible insert flattens against the door edge, providing a broad contact surface and sealing the area to be insulated.

The strip can also be used for door bottoms as well as tops and sides, so that an efficient seal is provided all around. The bottom strip is channel-shaped and slips onto the side of the door, where it is held in place by the spring tension of its upright sides. Windows can also be weatherstripped with the product when it is cut to size with tin snips. It is available in sets for all standard-sized doors and in lengths of 3 and 4 ft for windows. Kunkel Products, Inc., 217 Ash St., Akron, Ohio.

(*Continued on page 250*)

A unit heater for every need from HERMAN NELSON

Vertical shaft propeller-fan type unit heater—*especially suited to buildings with high ceilings — up to 50 feet.*

Horizontal shaft propeller-fan type unit heater—*the most generally useful of all space heaters.*

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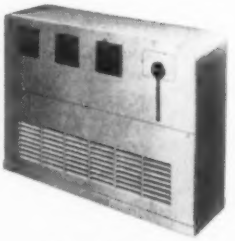

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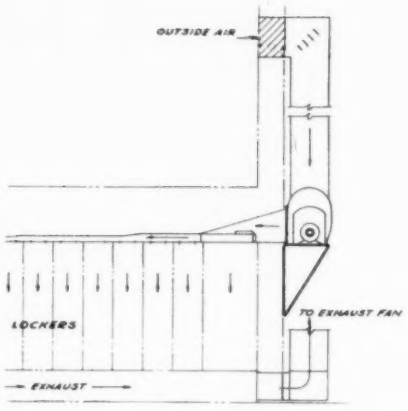
PRODUCTS

(*Continued from page 244*)

Ventilated Steel Lockers

The *Air-Flow* is a steel locker designed to be used with a built-in ventilating system which permits circulation of clean, treated air through the locker to remove odors and keep clothing fresh and dry. The locker in this application can be recessed in a wall or mounted on an island base. Air is forced through a hood or individual ducts over lockers down through the perforated locker top and louvered bottom and into a base which serves as an exhaust plenum (see cutaway sketch). Ductwork leads from the base to an exhaust fan. The locker doors are solid, flush front so that locker room odors cannot pass through the lockers. Louvers can be installed in the exhaust plenum so that the locker room can be ventilated by the same system if desired. Although the locker was especially designed for this system, other ventilating methods are applicable.



Air flows through lockers and plenums as shown in cross-section and drawing

Other features of the new locker include: a sloping bottom with shoe holder which prevents dirt and refuse from accumulating and provides better ventilation and drying for shoes; an elevated dressing bench supported from the locker base which keeps the floor free from obstructions and makes cleaning easier; a space-saving hat holder and an automatic locking device, in addition to coat rod and hooks and a storage shelf. The locker may be installed in new or old buildings as an integral part of locker room modernization. It was designed by the Scott Paper Co. Washroom Advisory Service in cooperation with the manufacturer, Penn Metal Corp. of Penna., Oregon Ave. & Swanson St., Philadelphia 48, Pa.

Adhesive-Backed Weatherstripping

Kling Felt No. 113 is a felt weatherstripping which features a new solvent-activated adhesive backing said to permit permanent sticking to cold metal

(*Continued on page 251*)

AGAIN CLOW (THREADED) CAST IRON PIPE

Choice of Architects, Engineers and Plumbing Contractors

Artist's conception of the beautiful new apartment building, Sheridan Shores, located on Chicago's lake front

ARCHITECT: Erwin G. Fredrick
MECHANICAL ENGINEERS: W. E. Wellman & Co.
PLUMBING & HEATING CONTRACTOR Fettes, Love and Sieben

Clow (threaded) Cast Iron Pipe was used in the construction of this modern apartment building—as it has been used in similar installations throughout the country. The preference is for Clow Cast Iron Pipe because of its corrosion-resistant properties and the fact that it offers a useful service life of more than a century.

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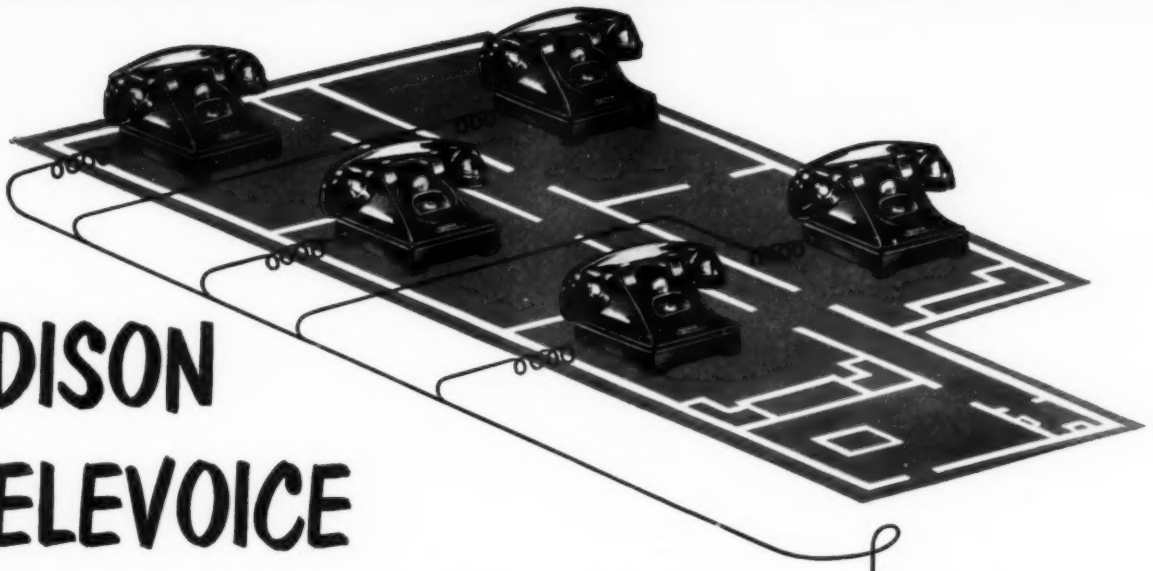

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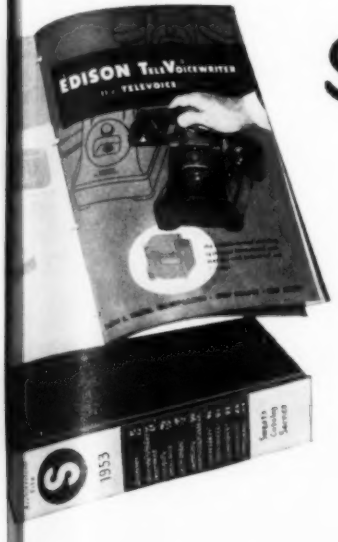

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For complete data on TELEVOICE, look up the EDISON TELEVOICE catalog--under "Communication," Section 31, in the latest Sweet's Architectural File. It's the only dictating system included. You'll see how TELEVOICE enables your client to speed up and simplify his handling of written work--and how easy it is for you to include TELEVOICE in your plans. To many of your clients TELEVOICE is not only desirable but indispensable; for example, no truly modern hospital, where up-to-the-minute medical records are essential, should be planned today without providing for TELEVOICE! If you are planning business, institutional or industrial space, turn to EDISON in the Architectural File--Section 31.

Many low-cost, easy-to-use, remote-control TELEVOICE stations connect to a central recording EDISON TELEVOICEWRITER

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The Televoice System

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INCORPORATED
Ediphone Division West Orange, New Jersey

EDISON (Ediphone Div.), 46 Lakeside Avenue, West Orange, N. J.

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( ) copies of A LINE ON TELEVOICE

NAME_____

TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

PRODUCTS
(*Continued from page 250*)

without gluing, tacking or caulking. The strip is reported to stick to surfaces so tightly that it will not travel when sidewise pressure is applied. It is thus suitable for sealing metal casements as well as all other doors, windows and vents, and it is described as assuring a positive, deterioration-resistant seal against rain, wind, dust and cold. In addition to its function as weatherstripping, the product is designed for other applications in the building field. Among these, for example, the manufacturer cites its suitability as an anti-bang cushion for doors and as a protective spacer between linoleum and heavy appliance bases. The stripping is available in thicknesses of $\frac{1}{32}$, $\frac{1}{16}$, $\frac{1}{8}$ and $\frac{1}{4}$ in., and in widths from $\frac{1}{4}$ to 66 in. Products Research Co., 3126 Los Feliz Blvd., Los Angeles 39, Calif.

Felt weatherstrip adheres tightly, forms deterioration-resistant, positive seal

SOSS
HINGES
ADD BEAUTY and DISTINCTION TO ANY BUILDING

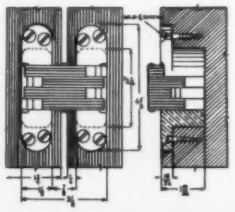
Solar-Space House—Equipped with Invisible Soss Hinges
Architect—David Baker—Washington, D. C.

COMPLETELY INVISIBLE
Soss Hinges are completely hidden from view when doors or panels are closed. They're the only hinges that let you meet the demands of contemporary architecture for streamlined surfaces.

EASY TO INSTALL
A full size mortising template is included with every pair of Soss Hinges. This template enables any good carpenter to install Soss Hinges quickly and efficiently.

PLEASING TO CLIENTS
Clients like the distinctive, beauty that only Soss Hinges provide. Also, Soss Hinges give to doors a solid, luxurious "feel" that cannot be achieved in any other way!

A SIZE FOR EVERY USE
There's a Soss Hinge for every type of installation—AND—Invisible Soss Hinges have proven to endure any type of climatic condition . . . making them ideal for bathroom and kitchen doors.



SOSS INVISIBLE HINGES

Specifications for Soss Hinge No. 218. For other sizes and adaptations send for Free Blue Print Catalogue today—

SOSS MANUFACTURING COMPANY
21769 HOOVER ROAD • DETROIT 13, MICHIGAN

Aluminum Sill For Weather Protection

Fleetlite double, double-hung windows are now equipped with a new extruded aluminum sill which affords increased protection against wind and rain. A *Koroseal* lip along the entire bottom edge of the storm sash and interior sash seals the space between sash and sill. Pile Mohair weatherstripping on the vertical surfaces of the sill contacts the inside edge of the sash, forming a snug fit to block wind-blown rain, snow or dust. Three vertical steps inside of the screen, storm sash and interior sash are a further protection against the elements. There are no moisture or ice traps on the inclined surfaces, and outside pressure keeps contact tight at all points along the sill so that the window becomes tighter and more weatherproof as the force of the wind increases. Fleet of America, Inc., 470 Dun Bldg., Buffalo 2, N. Y.

Translucent Structural Panels

Constructed of glass-fiber-reinforced plastic, *Rippolite* panels are reported to be easily installed with ordinary tools. They may be drilled, punched or fastened by nails, bolts or screws, and sealed with clear mastic. The corrugated panels are said to be suited for industrial, commercial or residential use and are not affected by extreme weather conditions when used indoors or out. Partitions, awnings, cabanas, canopies, greenhouses, display advertising, shower stalls, skylighting and store fronts are among recommended uses for the material. Shatter resistant and translucent, Rippolite is suitable for daylighting or any decorative lighting installation. It is available in a variety of colors, in standard lengths up to 12 ft and widths up to 4 ft. Rippolite, Alexander H. Kerr & Co., Inc., Kerr Panel Div., 3440 Wilshire Blvd., Los Angeles 5, Calif.

(*Continued on page 258*)

Superior Construction Makes The Big Difference!

MEDART
STEEL LOCKERS

No ordinary lockers are these! The basic reason Medart Lockers have been leading choice among architects and builders isn't price, but value—what the client actually gets for his money.

First of all, Medart Steel Lockers are built to last—to give many *extra* years of rugged service and still retain their just-installed appearance—to provide far-above-average tamper-proof, pilfer-proof security with the lowest possible maintenance.

Secondly, because Medart originated and perfected virtually every feature now considered a "must" in modern steel lockers, Medart makes the only lockers that include them *all*, not just one or two.

Be confident, when you specify Medart Steel Lockers, that no others made can surpass them in good engineering and construction, quality materials, advanced features and dependable durability. And remember—Medart's 80 years of experience, to help you solve every locker problem, is yours without obligation.

Write For Catalog

MEDART LOCKERS in all standard types and sizes, recessed and free-standing, are built by Medart.

BASKET SHELVING ... in both permanent and portable types, and in many sizes, is built by Medart.

SEE OUR CATALOG IN SWEET'S

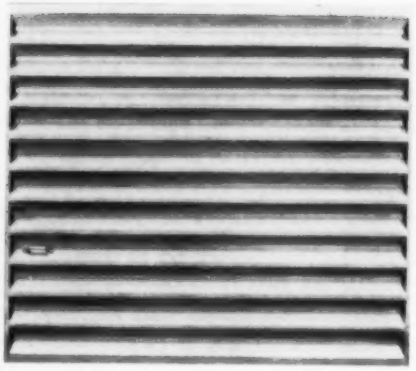
FRED MEDART PRODUCTS, INC. 3540 DE KALB STREET ST. LOUIS 18, MISSOURI

World's Only Complete Single Source For Gymnasium Equipment

Telescopic Gym Seats | Lockers & Wire Basket Shelving | Lockerobes & Grade-Robes | Basketball Backstops | Physical Fitness Apparatus | Basketball & Football Scoreboards | Physical Therapy Equipment

Medart

PRODUCTS
(*Continued from page 254*)



Above, left: all aluminum garage door has cushioned stop for extra safety. Above: garage door especially suited for commercial or industrial use is reinforced on the interior side for serviceability

Vertical Lift Garage Doors

Recently introduced and currently available are two new overhead garage doors:

• The *Alumi-Door* is an all-aluminum, light weight door which may be used in its natural finish or painted to any desired color. Available with either track or jamb hardware, the door is said to be easily operated and equally easy to install. Complete safety is afforded by its cushioned stop. Heavy V-bracing is reported to provide prevention of torsion, twist, sag or warp in any climate, and because it's all aluminum, it is rust and fireproof. Stevens-Thuet Co., 2165 Cowles St., Long Beach 13, Calif.

• Made of flush steel construction, a new model *Overhead Door* is especially designed for commercial or industrial installation. Horizontal sections are narrow, for smooth and easy operation. The sections are rolled of 16-gage steel and all joints are weathertight. The door is reinforced on the interior side with center stiles and end stiles of $\frac{1}{8}$-in. thick steel, spot-welded and arc-welded in place. The Overhead Door Corp., Hartford City, Ind.

Fluorescent Lighting Fixture

A new, low-priced line of fluorescent ceiling fixtures has recently been announced. The *Gar-See-Lite* fixtures are of the general-diffuse type, providing approximately 50 per cent direct and 50 per cent indirect light distribution. Fixtures are available in either two- or four-lamp units for standard fluorescent or slimline lamps. A choice of side panels includes plastic, metal or illuminated metal. Units are easily cleaned and re-lamped. Louvers are lowered by releasing a spring catch at either or both ends. A 14-in. drop chain supports the louver in lowered position. Garden City Plating & Mfg. Co., 1750 N. Ashland Ave., Chicago 22, Ill., Attn. V. R. Bohlman.

(*Continued on page 262*)

TERRAZZO IN HOSPITALS

Terrazzo

paves the way to aseptic cleanliness

Wanted for the long hall, wanted in surgery, wanted wherever a smooth, unbroken surface is prescribed, TERRAZZO delivers an easy-to-clean floor that thrives on use. Installed for permanence, punishment and performance, TERRAZZO provides floors, wainscots, stairs and walls of inviting appearance and minimum upkeep.

If you're building or remodeling, investigate TERRAZZO. Its low first cost recommends it—longevity confirms its value—and low maintenance cost clinches the argument. Write for free AIA Kit, with complete details.

SEE OUR CATALOG IN SWEET'S

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC.

404 SHERATON BUILDING 711 14th St., N. W. WASHINGTON 5, D. C.

HOW TO ANTICIPATE PLANT EXPANSION

Q-PANELS

Air view of the FORMICA COMPANY'S building. Walls of Q-Panel were detached, moved forward and used again on the addition. A Q-Panel wall has the quality of a permanent wall but with the additional advantage of being removable to provide for plant expansion.

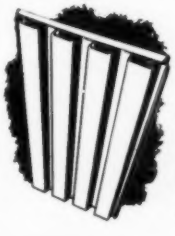
Close-up of the FORMICA plant shows the neat and attractive design formed by continuous Q-Panel fluted texture. Architects have achieved a great variety of design by combining Q-Panels with other materials for decorative effect.

From left to right—Mr. D. J. O'Conor, President of the FORMICA COMPANY, Mr. A. M. Kinney, President of A. M. Kinney, Inc., which designed the FORMICA plant and Mr. George H. Clark, Vice President in charge of engineering of the FORMICA COMPANY.

The FORMICA COMPANY built its new Cincinnati plant with Q-Panel walls, later removed the Q-Panels from two sides and re-used them on the addition. Note, in the air view, the older section has a lighter colored roof than the newer section.

ROBERTSON Q-PANELS can be taken down as easily as they can be erected—which is about nine minutes for a fifty-square-foot unit by a crew of only four men. Q-Panels provide you a good-looking wall, with erection and maintenance features that solve the peculiar construction problems which have arisen in the last ten years.

Q-Panels lend themselves to a great variety of designs. They are available in several fluted patterns. They require no maintenance, arrive at the site ready for erection either as a factory-assembled panel or a field-assembled panel. Do you have the details in your file?



Q-PANEL FACTS

MATERIALS—Metallic-coated Steel, Galbestos, stainless steel, aluminum on one or both sides.

SIZE—2'0" standard width. Lengths up to 25'0", depending on material used.

WEIGHT—Varies with metals selected but averages 4½ lbs. per square foot.

INSULATION VALUE—Superior to 12" of masonry with furred plaster. U-Factor—.14 B.T.U. in aluminum—.18 B.T.U. in steel.

STRENGTH—Great strength permits widest spacing of horizontal supports to meet the required wind load.

Write for Latest Catalog

Q-PANELS

H. H. ROBERTSON CO.

2404 Farmers Bank Building
Pittsburgh 22, Pennsylvania

Offices in ALL Principal Cities in the U.S.A. and Canada

World-Wide Building Service

PRODUCTS
(Continued from page 258)

Furniture and Lamps

Currently available at Dart Associates' new showroom are several items of contemporary furniture, a large assortment of floor and table lamps, a number of decorative accessories, and cooking items for the gourmet. Included in the furniture group is a sculptured

Pillowed gossip bench, above left, is of birch slats. Mobile lighting fixture, above, may be used on wall or table

chair from Denmark in beech and walnut molded wood; a modular wall unit from Sweden, containing bookshelves, desk, storage space and/or magazine rack; and a group of slat tables of varied sizes and shapes, the slats being so arranged that even a one-ounce glass will engage two slats. Among the lighting fixtures is found a series of ceiling fixtures and lamps in a new plastic, which is reported to be cutproof, smashproof and burnproof. These lamps (from Germany) feature a pulldown and adjustable arrangement. Other lighting fixtures include mobiles and stabiles by Ridi and Otto Kolb (who have received *Good Design* acclaim) and painted pottery designs from Italy. Dart Assoc., Inc., 39 W. 23rd St., New York 10, N. Y.

Steel Basement Sash Forms

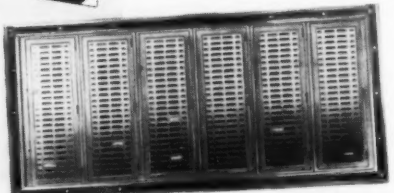
Steelcraft steel basement sash forms for installation of sash in poured concrete basements are reported to speed construction and lower installation costs. Basement sash is locked into the steel forms which are then nailed to wood foundation forms. The concrete is then poured and allowed to harden. When the wood forms are removed, the steel sash forms can be loosened and removed for re-use. The forms reportedly assure perfect fit with proper clearances for operation of basement sash and also eliminate leakage in mortar joints. Forms are made of heavy gage steel, bonderized with a baked-on coat of paint. They are available to match three standard sizes of basement sash, and a 2- or 4-in. extension can be attached to permit their use in 10- and 12-in. thick walls. Steelcrafts Mfg. Co., 9017 Blue Ash Rd., Rossmoyne, Ohio.

FARADAY

the Emblem of Quality since 1875

From Entrance to Bedside . . .

Smooth, efficient hospital management is vitally dependent on its electrical "nerve network". Whether the problem is keeping track of doctors' arrivals and departures, silent corridor paging or bedside nurses call, there's a Faraday signal or system tailor-made to suit your requirements. Faraday installations in hundreds of hospitals are daily proving themselves "tops" in dependability. In planning a new system or remodeling an existing one our Engineering Department will assist you in working out the details.



Doctors In-and-Out Register

Ward Station

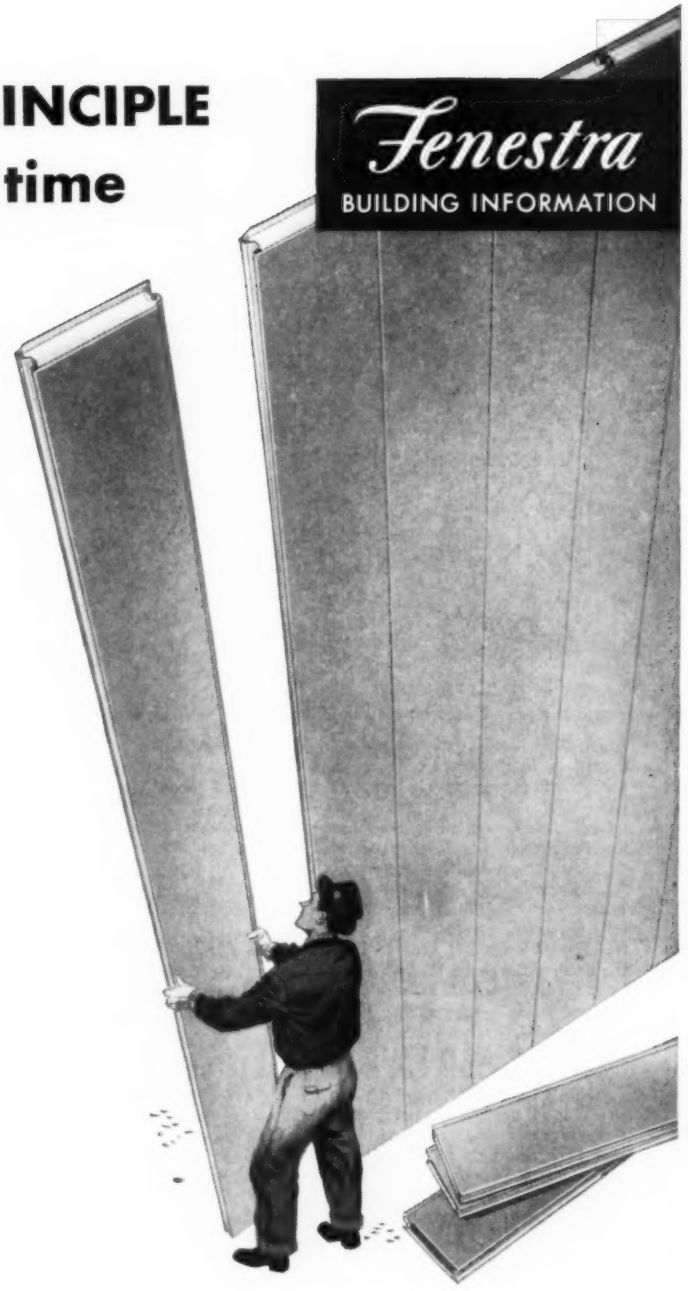
HOLTZER-CABOT **FARADAY** STANLEY & PATTERSON

CONSOLIDATED BY:

SPERTI FARADAY INC. ADRIAN, MICH.

BELLS · BUZZERS · HORNS · CHIMES · VISUAL & AUDIBLE PAGING DEVICES AND SYSTEMS

Fenestra "AREA" PRINCIPLE saves you building time . . . and money!



Your building strides up area by area instead of creeping up inch by inch . . . a 16″ wide, 14′ long metal Fenestra "C" Panel, for example, forms 19 square feet of *inside and outside wall*, in one unit. Its 3″ thickness is packed with insulation. Better protection than a 16″ thick wall of masonry.

As the Fenestra* Panels quickly, tightly interlock and your walls enclose your building, a field coat of paint finishes the job. A prime coat was baked on the panels before they came to the site. Or they were *galvanized*—you have your choice.

No masons, no carpenters, no extra trades at all.

You're under cover and into production faster than you believed possible.

You've saved time, labor, materials and money.

You have walls so lightweight that you have even saved on structural steel.

You have walls that are clean and handsome and require practically no maintenance . . . walls that are firesafe.

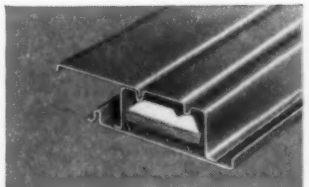
You have walls you can even dismantle and reassemble when you want to expand.

A lot of the handsome modern buildings you see as you travel around the country are testimony of the fact that Fenestra's "area" principle of building makes modern management sense.

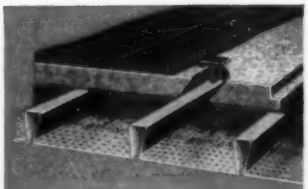
For further information, write or have your architect write, the Detroit Steel Products Company, Department AR-2, 2252 East Grand Boulevard, Detroit 11, Michigan. *Trademark

Fenestra METAL BUILDING PANELS

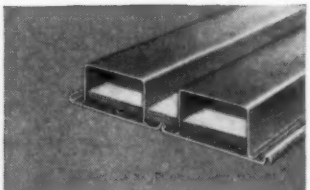
"C" Insulated Wall Panels. Width 16″. Depth is 3″ Steel or aluminum.



Acoustical "AD" Panels for ceiling-silencer-roof. Width 16″. Depth up to 7½″



Acoustical Holorib for acoustical-structural roof. Width 18″. Depth 1½″

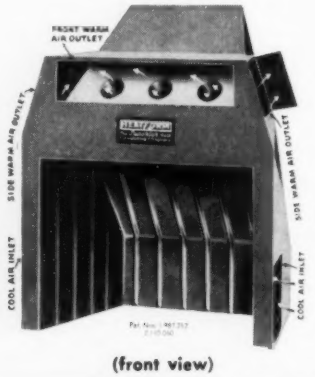


Acoustical "D" Panels for roofs, floors, ceilings. Width 16″. Depth 1½″ to 7½″

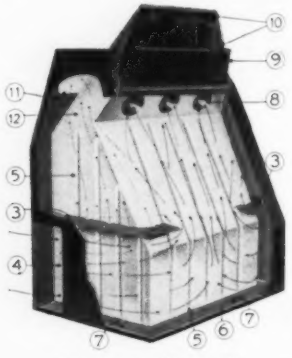
for Maximum Circulated Heat and Smokeless Operation... *Specify*

HEATFORM
The Superior Heat Circulating Fireplace

Thirty years of satisfactory use in homes all over America, plus national advertising in sixteen consumer magazines and plan books have made **HEATFORM** the choice of discriminating home owners as well as leading achitects, engineers and builders.



(front view)



(rear and side view)

HEATFORM Model "A"

HEATFORM is a double-walled, metal unit (hearth to flue) around which anyone can easily build the masonry to complete a fireplace of any design.

HEATFORM air chambers, which surround the firebox, front and side walls of the dome, and round air passages across the throat, capture and circulate through the home heat lost up the chimney by the ordinary fireplace.

HEATFORM adds but little to the cost of the finished fireplace. It consists of the firebox, throat, smoke dome and properly located damper; thus saving some labor and material.

HEATFORM HAS ALL THE GOOD QUALITIES OF OTHER HEAT CIRCULATING UNITS, PLUS ... these exclusive features

- Corrugated reinforced firebox.
- Heating chambers around firebox; also upper front and sides of throat.
- Round air passages across the throat.
- Larger cool-air inlets and warm-air outlets.
- Sloping rear outer lining permitting masonry downdraft shelf to protect the metal from rust.

Photo above shows outer lining removed. Arrows demonstrate air circulation through heating chambers and contact of air to all heating surfaces; thus eliminating dead-air pockets. NOTE key below to numbers on photo above:

(3) Baffle plates direct air to the rear heating chamber over the hottest metal.

(4) Large air inlets at floor level.

(5) Corrugated ribs in boiler-plate firebox provide much greater strength than flat metal.

(6) Location of rear cool-air inlet.

(7) Bottom view of air heating chambers.

(8) Superheating air passages through the throat.

(9) Underslung poker friction control damper.

(10) Smoke dome guides construction..

(11) Side air passage to upper heating chamber.

(12. Inner lining of the throat.

*HEATFORM is the registered trademark of Superior Fireplace Co.

HEATFORM Model "S" (at left)

for the modern corner fireplace with right or left side open. has all the features of Model "A" plus view of the fire from front and either side. Model "M" (not shown) has front and both sides open for greater view of the fire, otherwise the same as Model "S".

• • •

Special fabricated lintel angle bars and corner posts available for Models "S" and "M". Custom-built drape screens and fuel grates are available for all models and sizes of **HEATFORM**.

Write for Complete Information identifying your trade or profession.

OUR EAST AND WEST COAST FACTORIES MAKE HEATFORMS QUICKLY AVAILABLE THROUGH BUILDING SUPPLY AND LUMBER DEALERS EVERYWHERE.

SUPERIOR FIREPLACE CO.

Dept. AR-531, 1708 E. 15th St., Los Angeles 21, Calif.
Dept. AR-531, 601 North Point Rd., Baltimore 6, Maryland

LITERATURE

(*Continued from page 196*)

In addition, the indexing system, which heretofore was becoming increasingly complex, has been streamlined as follows:

1. At the front of each volume there is an index of names of all manufacturers whose catalogs are in the File.
2. At the front of each volume there is an "Index to Sections" listing the major product sections and subsections.
3. At the front of each of the 33 sections there is an index of all products cataloged in that section, together with company name and trade name indexes common to that section.

Clay Tile Setting Methods

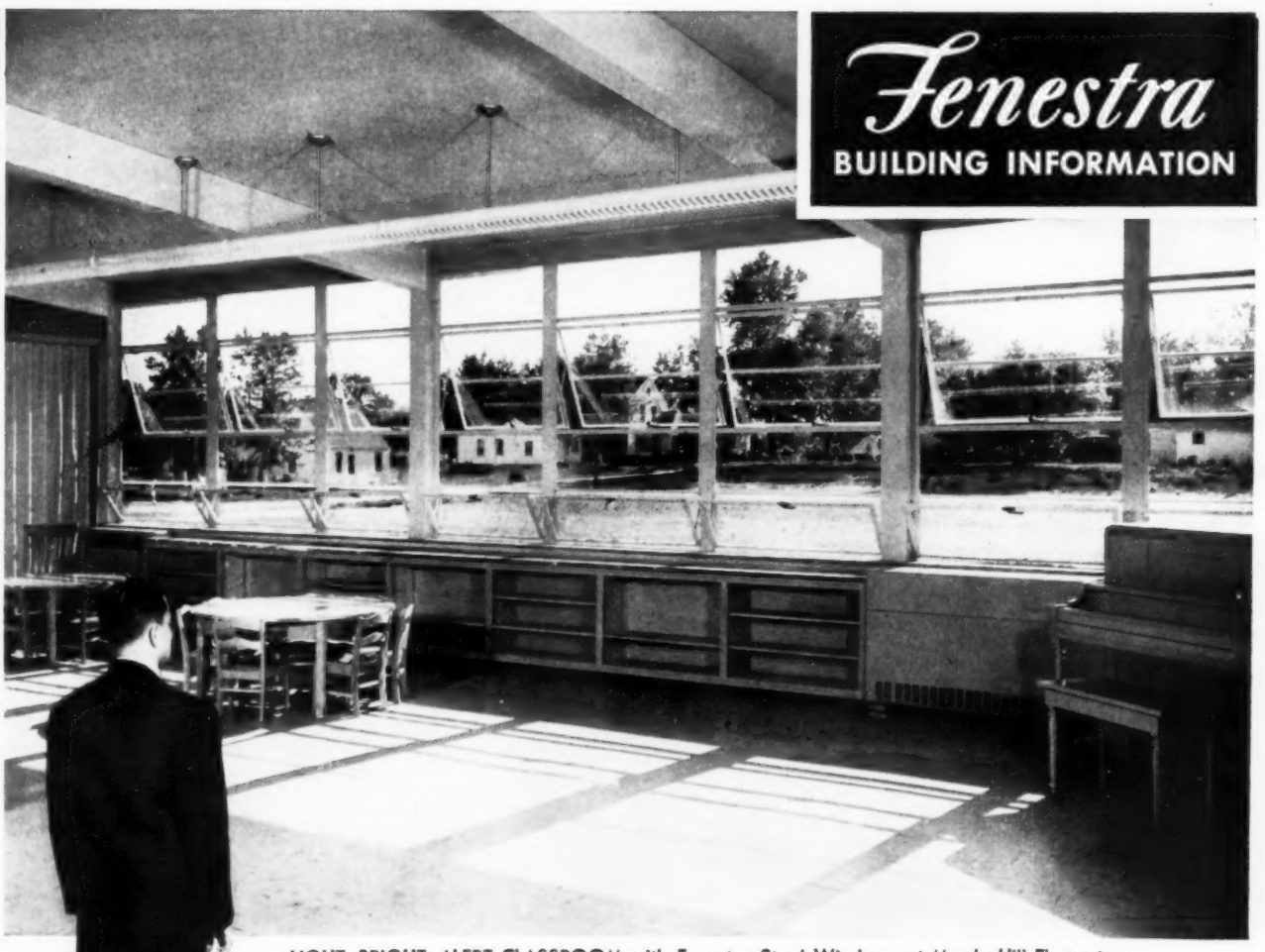
Clay Tile Thin Setting Bed Methods and Materials. Intended to complement the *Tile Handbook*, this brochure was compiled by Don Graf after nationwide interviews with architects, manufacturers, contractors, home owners and others. Contains information on possible advantages and disadvantages of thin setting, base surfaces, types of thin setting beds. Short form and detailed basic specifications are included, together with Commercial Standard CS 181–52 for water-resistant organic adhesive for installation of clay tile. 21 pp., illus. Tile Council of America, 10 E. 40th St., New York 16, N. Y.*

Chalkboards and Tackboards

Two pieces of manufacturer's literature describe individual chalkboard equipment lines:

• *Claridge Equipment Company, Chalkboards and Bulletin Boards*. This booklet describes the manufacturer's three types of chalkboards and three types of bulletin boards. Each is illustrated with drawings and photographs and discussed briefly. Data tables are included for each. A supplement to the catalog contains information on chalkboard trim, either snap-on or screw-on, in extruded aluminum, formed aluminum and formed steel. Specifications are in-

(*Continued on page 270*)



Fenestra
BUILDING INFORMATION

LIGHT, BRIGHT, ALERT CLASSROOM with Fenestra Steel Windows at Maple Hill Elementary School, Lansing, Mich. Notice how light fills the room. Architect: Laitals & Nuechterlein, Lansing. Contractor: Granger Bros., Lansing.

How can you get more light in a room by shutting a lot of it out?

Most of the school year, you need all the daylight you can bring in.

The only way you can avoid shutting a lot of it out is with clear glass.

And Fenestra* Intermediate Steel Windows are designed to give you *more clear glass area* . . . their frames are especially designed to be strong and rigid without being bulky.

They open up your whole room for an atmosphere of freedom and alertness.

You get controlled fresh air through the protecting vents in any kind of weather. No drafts. And rain can't get in.

Washing and screening are done from inside, so maintenance is simple and economical.

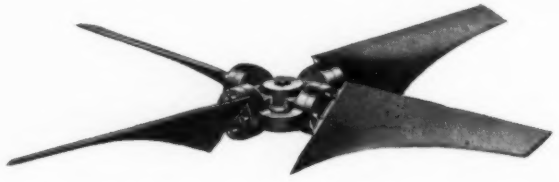
AVAILABLE SUPER GALVANIZED

Fenestra Steel Windows are available Super Hot-Dip Galvanized for complete protection from rust . . . *no painting necessary*. This Super Galvanizing is done in a special Fenestra plant . . . it is a Fenestra exclusive.

When you're buying daylight, get your money's worth. Get Fenestra Intermediate Steel Windows —made by America's largest steel window manufacturer. And write for your free copy of Better Classroom Daylighting by Lighting Expert, R. L. Biesele, Jr., and his staff. Detroit Steel Products Company, Dept. AR-2, 2252 East Grand Blvd., Detroit 11, Michigan. *®

For better school environment Fenestra **STEEL WINDOWS**

THIS SPECIALLY DESIGNED BURT AIRFOIL FAN



RAPIDLY EXHAUSTS AN UNOBSTRUCTED COLUMN OF AIR VERTICALLY UPWARD TO QUICKLY REMOVE HEAT, SMOKE, FUMES, DUST . . . . . .

THE BURT F.E.F. VENTILATOR IS EXTREMELY EFFICIENT

If your problem is rapid spot removal of contaminated air, investigate Burt's new F.E.F. (Free Exhaust Fan) Ventilator. Two dampers open wide automatically when the Burt Axial Flow Airfoil Fan is operating—close automatically for thorough weather-proofing when motor is shut down. The airshaft functions as an absolute free opening in use. Seven sizes and seventeen motor choices provide capacities from 5,000 C.F.M. to 75,500 C.F.M. For complete data see Sweet's, or write for Bulletin S.P.V-18.

FAN & GRAVITY VENTILATORS • LOUVERS • SHEET METAL SPECIALTIES

The Burt Manufacturing Company

48 East South Street • Akron 11, Ohio

LITERATURE

(*Continued from page 266*)

cluded for all products. Catalog, 7 pp., illus.; supplement, 4 pp., illus. Claridge Equipment Co., 4608 W. 20th St., Chicago 50, Ill.*

• *Loxit Chalkboard Setting System.* The manufacturer's adjustable chalkboard system of metal ground, extruded aluminum trim, springs and clips is described in this folder. Specifications and details for the system are included for both recessed and non-recessed installations. Details are also included and chalkboards, tackboards and accessories for use with the system are shown. Among these are a sliding chalkboard, swing panel bulletin board and a variable dimension trophy and display case. 11 pp., illus. Loxit Systems Inc., 1217 W. Washington Blvd., Chicago 7, Ill.*

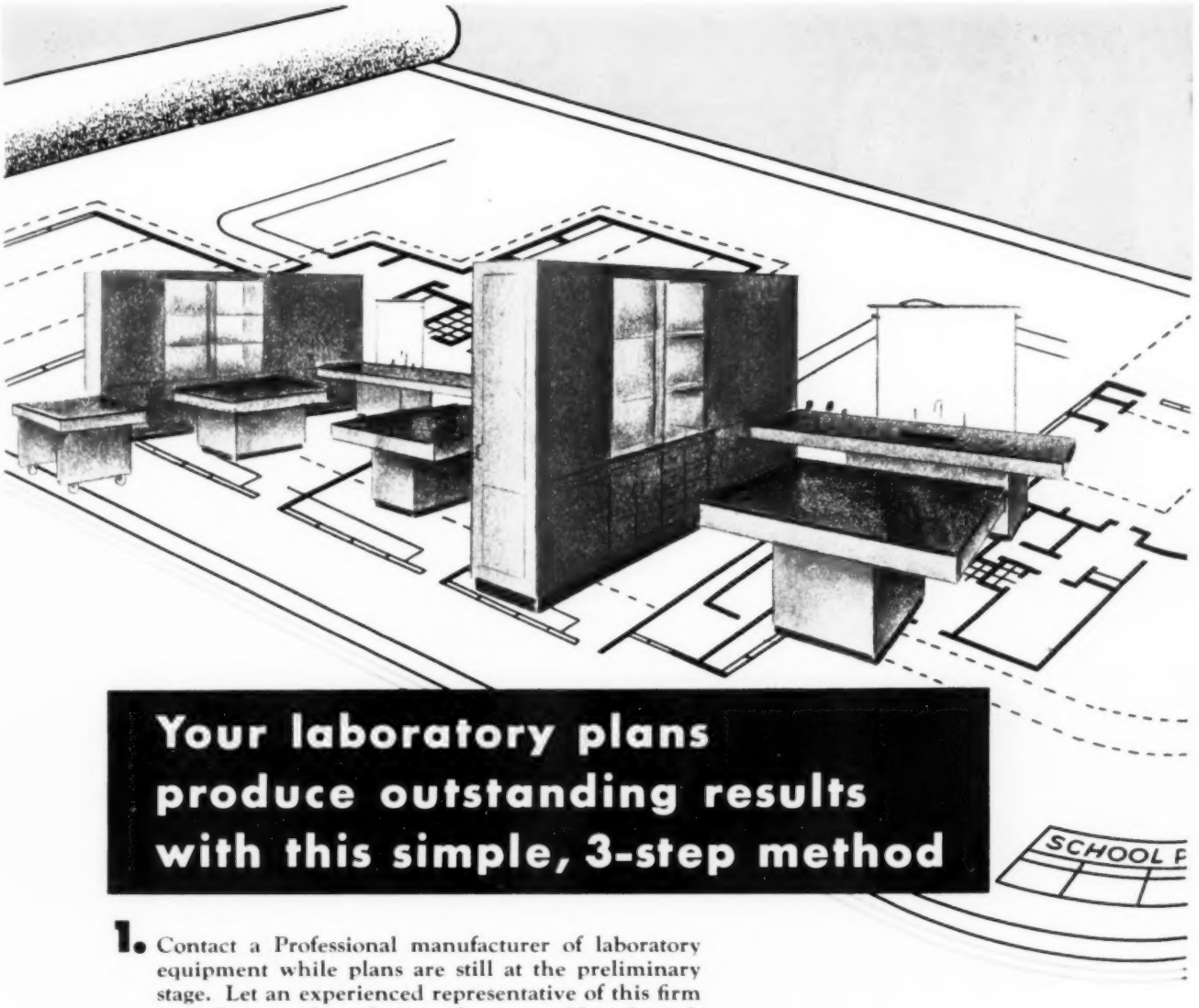
Color Service for Decorating

Style Guide and Color Companion, Vol. 3. Loose leaf book has hard cover and contains 50 pages of illustrations and 100 pages of popular colors, each of the latter pages having two cut-out windows through which appear compatible accent colors. Two additional accent colors are introduced when the page is turned. The volume may be borrowed from dealers without cost to study at home. 150 pp., illus. The Sherwin-Williams Co., Cleveland 1, Ohio.*

Protection from Carbon Monoxide

Carbon Monoxide Detector, Bulletin 201. Brochure gives information concerning protection wherever carbon monoxide threatens. Of special interest to persons engaged in the design or maintenance of public utilities, tunnels, garages, mines or industrial plants, the bulletin presents all of the special features of the manufacturer's detector and includes a description of its function, complete with technical drawings. Components are treated in photographs and text, and specifications are included. A list of suggested installations precedes some examples of installations already in use. 10 pp., illus. Taller & Cooper, 75 Front St., Brooklyn 1, N. Y.

(*Continued on page 274*)



Your laboratory plans produce outstanding results with this simple, 3-step method

1. Contact a Professional manufacturer of laboratory equipment while plans are still at the preliminary stage. Let an experienced representative of this firm contribute to the solution of your problem knowledge gained through years of laboratory planning.

2. Prepare separate specifications covering laboratory equipment, or have these made a separate section of the general construction specifications. This permits Professional manufacturers to consider those portions of the job they are especially equipped to produce.

3. Secure direct bids from Professional manufacturers to the owners, or, when indicated, to the general contractor. In this way you receive the full benefits of specialized manufacturing facilities, volume production of standard components and thoroughly trained installation personnel. 1, 2, 3—that's all there is to it!

This entire question of laboratory planning and purchasing has been explored in Better Laboratory Planning, an attractive new booklet published by Scientific Apparatus Makers Association. Thoroughly readable, and illustrated with numerous photographs of outstanding laboratory installations, Better Laboratory Planning belongs in every architect's reference library.

If you have not received your copy it can be secured by writing to—

LABORATORY EQUIPMENT SECTION

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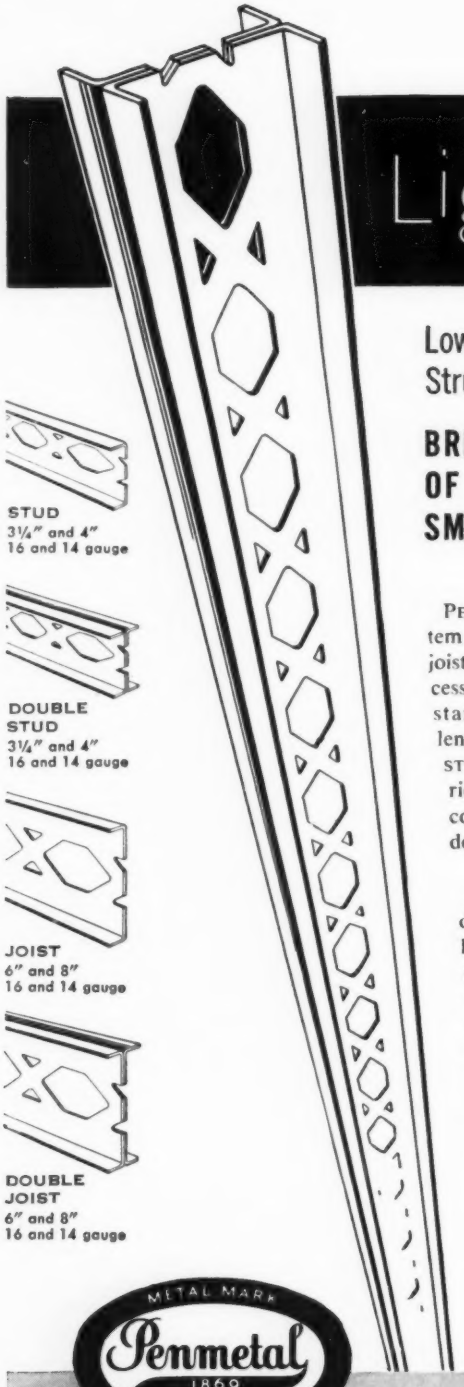

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LITERATURE

(*Continued from page 270*)

Uses of Lumber

Advancements in Wood Research and Timber Engineering. Booklet describes developments and research which reportedly enable architects and engineers to use lumber more advantageously, with resulting economies in time, labor and material. It also tells of the manufacturer's overall activities in timber engineering. 31 pp., illus. Timber Engineering Co., 1319 18th St., N. W., Washington 6, D. C.

Organ Installation

The Architectural Planning of an Organ Installation. Booklet contains valuable information on the installation of an organ in church or auditorium, presenting data on acoustics, power, reverberation, use of tone chambers, sound distribution and other useful information. Various types of installations are described with the aid of floor plans and specifications. 15 pp., illus. Organ Div., The Baldwin Piano Co., Cincinnati 2, Ohio.

Radiant Heating

Theory vs. Practice in Radiant Heating. Reprint of a series of articles by T. Napier Adlam, recently deceased technical director of Sarcotherm Controls, Inc. Originally published in *Heating and Ventilating*, the series is now available upon request. 24 pp., illus. Sarcotherm Controls, Inc., Empire State Bldg., New York 1, N. Y.*

LITERATURE REQUESTED

The following individuals and firms request manufacturers' literature:

Bryant & Walchi, Architects, 125 W. Adams St., Chicago 3, Ill.

Fred W. Butner Jr., A.I.A., Architect, 420 W. 4th St., Winston-Salem, N. C.

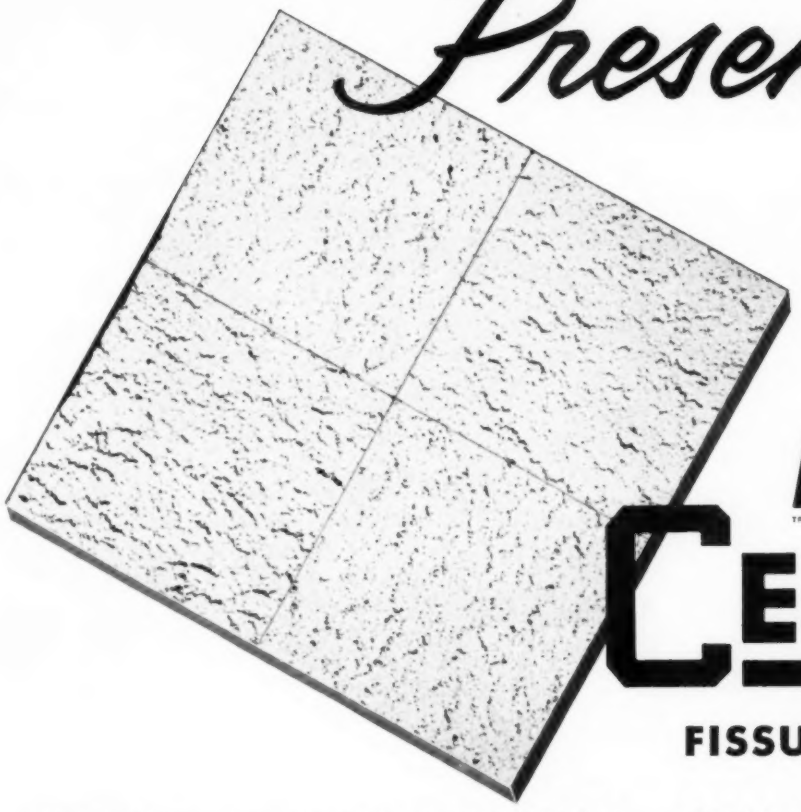
Michael J. DeAngelis, Architect, 125 N. Broad St., Philadelphia, Pa. (main offices still in Cutler Bldg., Rochester, N. Y.)

Raymond K. Knox, Architect, 913 So. 6th St., Springfield, Ill.

Ralph Swearingen, Architect, 1521 Fourth Ave., San Diego 1, Calif.

Colin L. Thompson, 28 Fourth Ave., Lane Cove, Sydney, N.S.W., Australia.

Presenting



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The most beautiful material of its type ever developed, new Acousti-Celotex CELOTONE has deep, irregularly shaped and spaced fissures that produce a pattern duplicating the charm of travertine marble. Shadow patterns created by the fissures cause its appearance to vary interestingly when viewed from different angles.

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TO SEE SAMPLES OF CELOTONE, contact your distributor of Acousti-Celotex Sound Conditioning Products. If you don't know where to reach him, write to The Celotex Corporation, Dept. B-23, 120 S. LaSalle St., Chicago 3, Ill. In Canada, Dominion Sound Equipments, Ltd., Montreal, Quebec.

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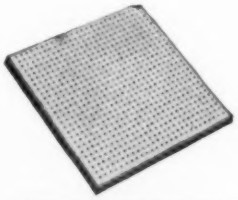

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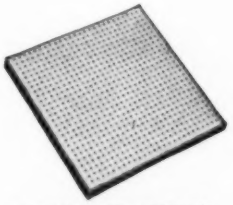
A cane fibre tile with a flame-resistant surface. This tile meets *Slow Burning* rating contained in Federal Specifications SS-A-118a. It may be washed with any commonly used solution, satisfactory for good quality oil-base paint finishes, without impairing its flame-resistant surface characteristics and without loss of sound-absorbing capacity. Repainting with Duo-Tex flame-retarding paint will maintain peak efficiency. Supplied in all sizes and thicknesses of regular cane tile.



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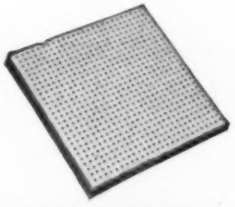
A lightweight, rigid unit, combining acoustical efficiency with a durable, smooth surface. Perforations (to within ⅛" of the back) assure repeated paintability, easy maintenance. Available in a variety of sound-absorbent ratings. Dry rot proofed by exclusive Ferox* process.



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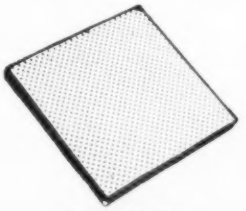
Made of mineral fibre, felted with a binder to form a rigid tile with a universal rating of incombustibility. Perforated with small holes extending almost to the back, this tile provides high acoustical absorption plus unrestricted paintability by either brush or spray method.



ACOUSTEEL*

Combines a face of perforated steel with a rigid pad of sound-absorbing Rock Wool to provide excellent sound-absorption, together with attractive appearance, durability and incombustibility. The exposed surface of perforated steel is finished in baked-on enamel. Acousteel is paintable, washable, cleanable.

**Trademarks Reg. U. S. Pat. Off.*

THE RECORD REPORTS

WASHINGTON

(*Continued from page 38*)

ing Research Advisory Board in the second year of its study for the Defense Production Administration of materials conservation in Federal construction. BRAB has been working with a "task force" of representatives of all the agencies in a sort of trial run on the effort to establish the practice of voluntary exchange of information.

The concept of lowest annual cost as the guide for Federal construction also has been getting further study. The proposal was submitted to the Office of Defense Mobilization and then to the Bureau of the Budget for consideration. It would affect building programs of several of the agencies which have been on both a first-cost and maintenance and operating costs plan.

BRAB has also given some time to carrying out its own recommendations on broadening to some extent the field of study in such areas as structural design. Actually, what started out as a study of materials conservation in Federal construction was broadened to include analysis of building codes and regulations, industry-government relations in building activities and a consideration of requirements for full mobilization.

So far in the second year's study, there has been no use of panels of industry specialists to analyze specific subjects and make recommendations, as was done during the first year; it was understood that similar panels might be called upon later this year.

As for reactions in the building industry to the DPA-BRAB effort, the plumbing group already has met to study new minimum standards, and the hope is that others will follow suit.

The conclusions of the first year's study were summed up in a "Study of Conservation in Building Construction," published last June. Extension of the BRAB contract with DPA for a third year is being considered.

STOP CORROSION DAMAGE

DURIRON ACIDPROOF DRAIN PIPE

The specification of Duriron Acidproof Drain Pipe is the way to solve the problem of corrosive waste disposal. Duriron is a high silicon iron extremely resistant to corrosion, erosion and abrasion throughout the entire thickness of the pipe wall. Installation? The same as with ordinary cast iron soil pipe. Under most conditions, it will last the lifetime of the building. Write for Catalog PF/1.

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HHFA SLIDES AID IN TEACHING OF MODULAR

To aid architectural schools and others in the explanation of the modular coordination principle, the Housing and Home Finance Agency has fostered preparation of a set of 14 2-in. by 2-in. color slides. These now are for sale, at $4.75 per set, from the manufacturer — Photo Lab, Inc., 3825 Georgia Ave. N. W., Washington, D. C.

The 14 drawings show the application of the basic principles of modular coordination in the assembly of materials in buildings. Each slide is accompanied by explanatory text, as an outline guide for the development of lecture material for different classes of audiences.

William Demarest, Jr., secretary for modular coordination for the American Institute of Architects, assisted in the HHFA research division project.

ADVICE TO AIR FORCE: DESIGN FOR AUSTERITY

The austerity theme imposed on military construction by an economy-minded Congress mindful of a tax-weary electorate was sounded again last month in the report of a House subcommittee on government operations. The subcommittee, headed by Rep.

(*Continued on page 282*)

PICK TRUMBULL NLTQ LIGHTING PANELBOARDS

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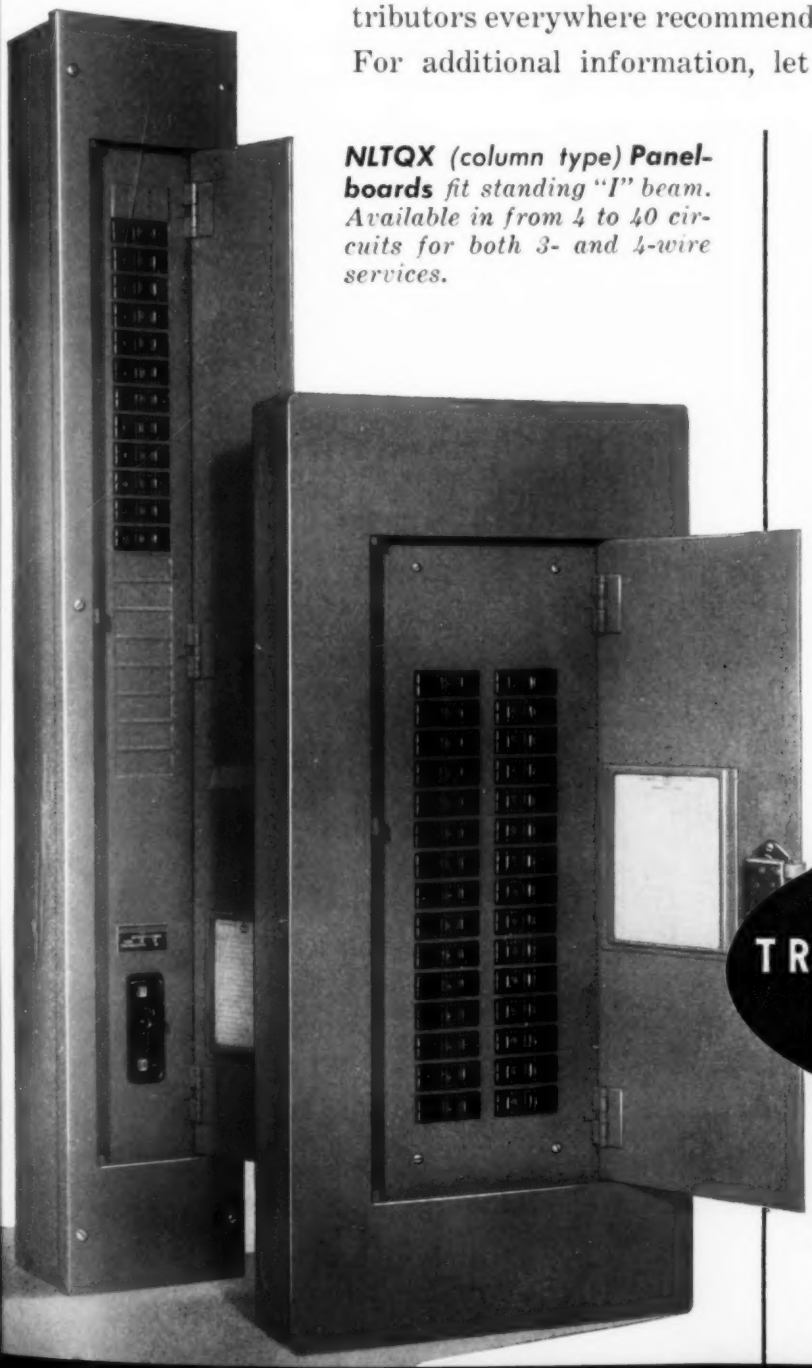

***NLTQX** (column type) **Panelboards** fit standing "I" beam. Available in from 4 to 40 circuits for both 3- and 4-wire services.*

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1. Circuit breaker convenience and protection. Type TQL. Quick-make, quick-break. Thermal-magnetic trip, arc-quenching design and trip-free action for top protection. Convenient plug-in design and manual re-set. Equally important, it has a separate trip indicating position.

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 278*)

Porter Hardy (D-Va.), visited 15 military installations in 12 days, then erupted with charges of over-building, "plush," "frills," etc.

The Air Force, which came in for some of the stiffest criticism over its Limestone, Me., Air Base, insisted that steps are being taken to remove "frills" from construction — but the long lead time between planning and completion of projects means it would be at least a year before these changes showed up in finished construction.

The Hardy committee cited such "plush features" as folding plastic partitions, expensive doors, terrazzo floors, circular stairways, high tile wainscoting and brick facing over masonry-block. This was at Limestone.

Architectural concepts of the buildings at Limestone, the report continued, called for insulating double glazing so that a large amount of glass areas adding to fuel costs when it was put in the original buildings but discontinued in later construction. The result is heat loss and added fuel costs in the cold climate.

To top it off, the investigators found expensive and completed facilities standing idle at Limestone while overcrowded conditions were observed at other places.

Other committee comments on the 15-base tour:

— In some cases of barracks construction the Air Force has sacrificed durability for esthetic considerations and convenience in order to stay within per-man cost limitations. Such a procedure seems to ignore austerity mandates and to be uneconomical from the standpoint of maintenance costs. It is the feeling of the subcommittee that before additional requests for permanent-type troop housing are made to Congress, the Secretary of Defense should prescribe satisfactory dormitory standards which will be compatible with low, long-term maintenance costs as well as minimum per-unit construction costs.

— Economies inherent in utilizing standard plans and design are frequently nullified by failure to make appropriate adaptations to meet local conditions. For example, the use of a standard-type alert hangar at Air Force bases without regard to climatic conditions seems unjustifiable. Also, expensive office space in the Army's standard warehouse designs should have been eliminated in situations where sufficient administrative space was already available.

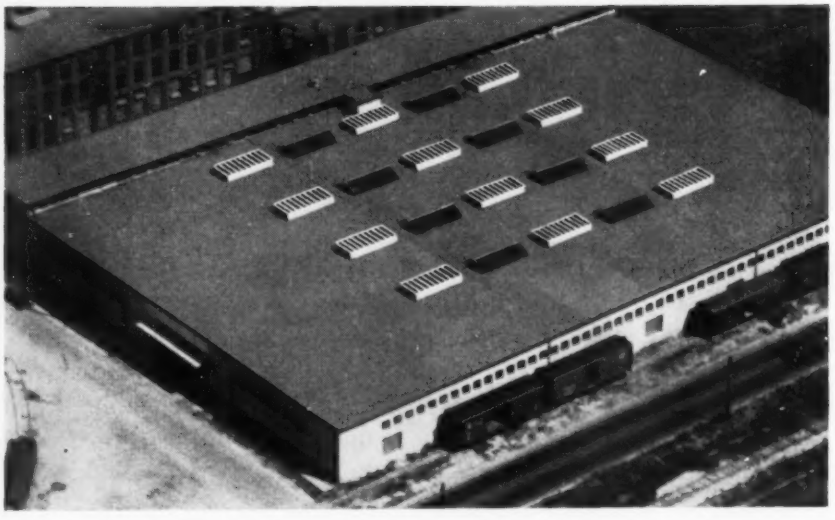
— Functional obsolescence is already apparent in certain specialized buildings only recently constructed. Example: wing hangars constructed by the Air Force at northern bases.

— The subcommittee felt that in certain instances there was insufficient effort to use and conserve temporary buildings which are structurally sound and subject to rehabilitation at moderate cost. There was some evidence that inter-service rivalry for long-term permanent construction has overshadowed the desire to get the most defense for the least cost. A noteworthy exception was the attitude of the Commanding General at Lowry Air Force Base who is recommending a plausible rehabilitation program.

— The Air Force is engaged in a costly construction program for providing supporting facilities for its Security Service

(*Continued on page 286*)

Airmover ventilates a multitude of roofs



New Orleans warehouse has "wholesale" low cost ventilation with low contour Airmover

A warehouse today — a mammoth processing plant, factory building, garage, recreation hall or school tomorrow — figure the Airmover *first*, for most efficient large scale ventilation. You'll be amazed at the variety of applications being made with this versatile modern ventilator design. Only 32" high above its curb, Airmover keeps structural sky-lines low and "neat". Used in single or multiple unit installation, it provides as little or as much ventilation as required by the building's occupancy.

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This association will place a national sales and service network behind the distribution of hospital signal and communicating systems. We invite you to inquire how these outstanding systems—as modern as tomorrow—will "bring your hospital up to STANDARD."

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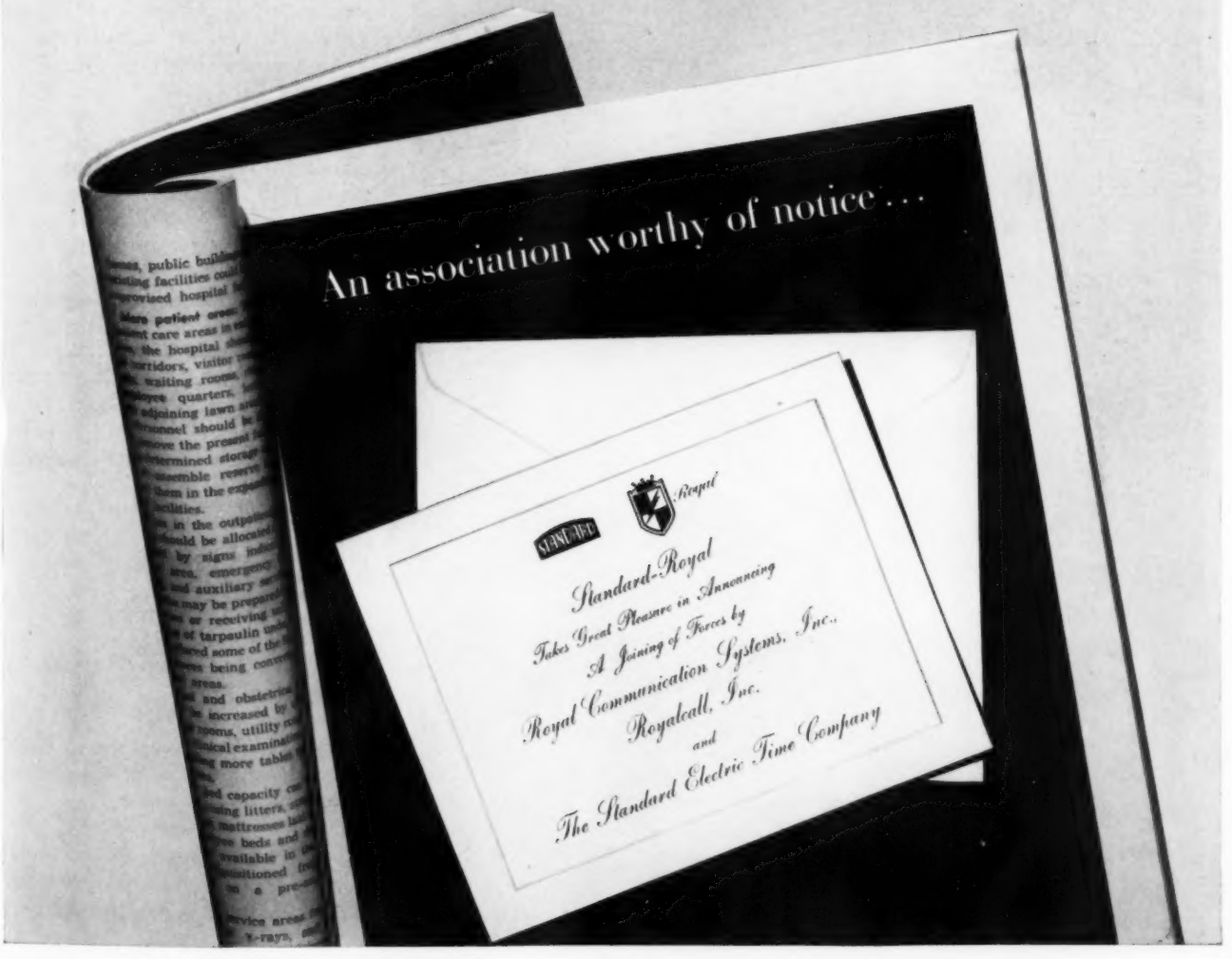


THE RECORD REPORTS

WASHINGTON

(*Continued from page 282*)

which might have been unnecessary if more judicious planning had been exercised at the outset.

— There is an urgent need for a comprehensive study of warehouse utilization and storage requirements and for uniform and clear-cut directives and definitions of terms and criteria. Under present conditions the subcommittee is unable to evaluate the justification for warehouse construction already authorized and believes that the services are likewise unable adequately to support their estimates of space requirements whether already authorized or in the planning stage.

ADDENDA

• Construction in 1952 hit a new high of $32 billion, according to preliminary estimates of the U. S. Labor Department's Bureau of Labor Statistics and the Building Materials Division of the U. S. Department of Commerce. New private construction put in place was valued at $21.3 billion, slightly more than in 1951; public expenditures for new construction reached $10.5 billion, up $1⅓ billion from 1951. Major part of the five per cent dollar volume increase occurred during the second half; the unusual volume of private dwellings begun in the fall was largely responsible.

Physical volume was down somewhat both from 1951 and from the record 1950 level. Additional dollars spent in 1951 and 1952 reflect mainly increases in construction costs.

• "A Survey of Housing Research," a summary of recent and current housing research and facilities for conducting such research throughout the United States, has been issued by the Division of Housing Research of the Housing and Home Finance Agency. The 723-page volume, result of a survey made for HHFA by the Building Research Advisory Board, is available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for three dollars a copy.

• Unofficial Federal Government estimates place at 125,000 the number of multi-family dwelling units constructed during 1952; that would be 10 per cent of the overall residential volume of 1,125,000 units. Concrete was the dominant type of construction: all public elevator-type apartment buildings used concrete; 82 per cent of all elevator types; and 60 per cent of the private multi-family units.

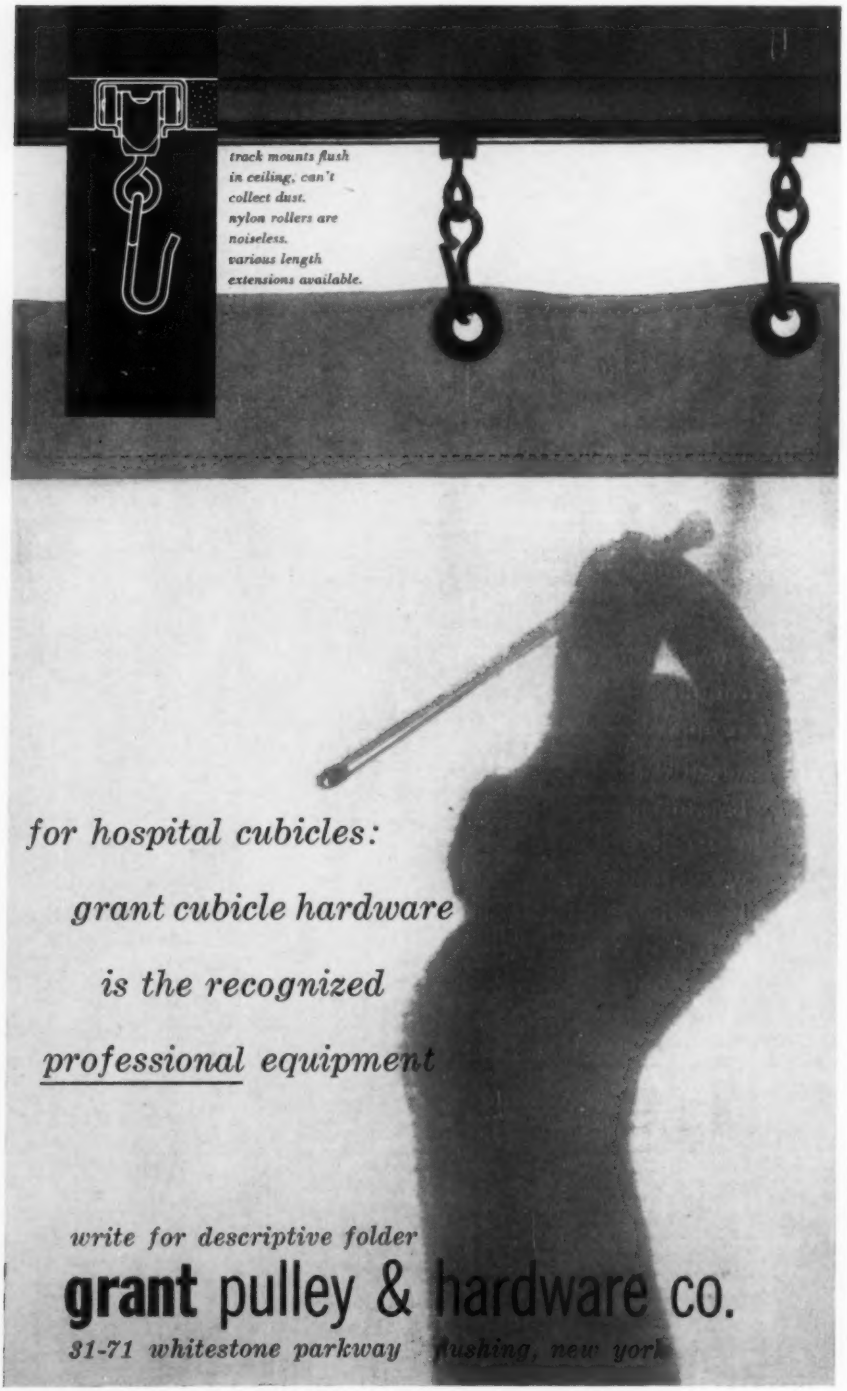
Of the 125,000 units, 105,600 (84 per cent) were walkup and 19,400 (16 per cent) elevator. Of the elevator-type, 16,000, (82 per cent) were concrete frame and 3400 (18 per cent), structural steel.

Private multi-family units numbered 70,000 with 61,600 (88 per cent) of the walkup type; 8400 (12 per cent), elevator. Of the elevator-type, 5000 (60 per cent) were concrete; 3400 (40 per cent), steel.

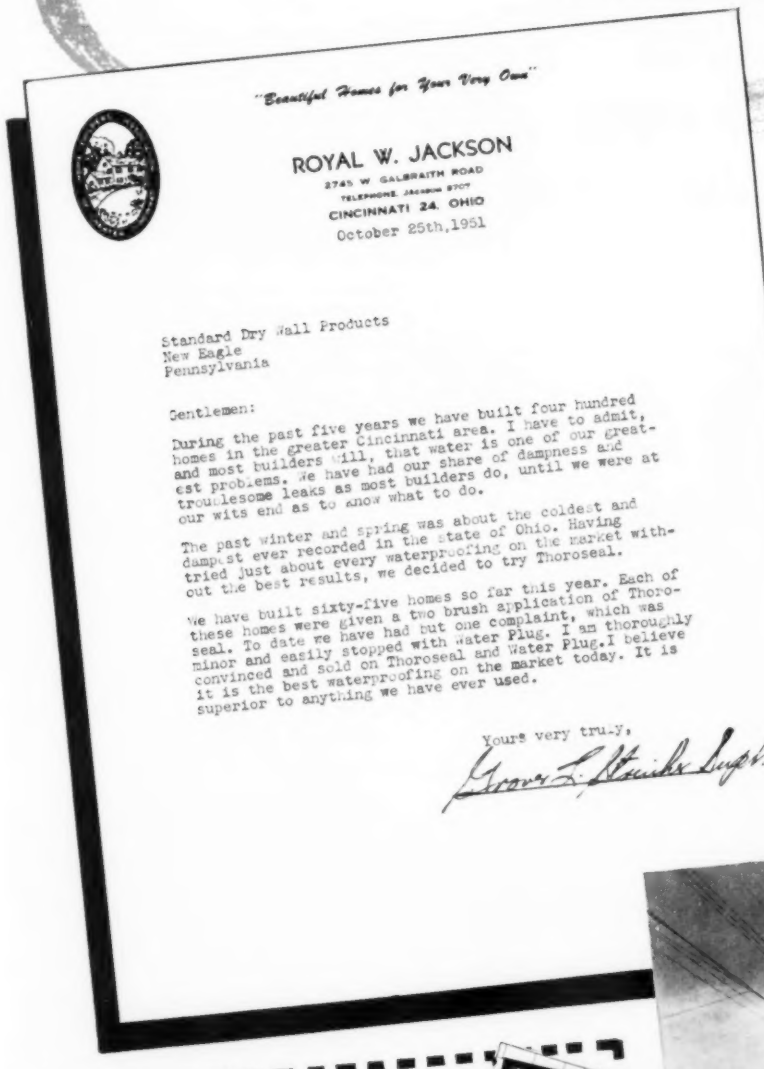
Of all the walkups built, 45,408 units (43 per cent) were wood frame; 10,560 (10 per cent), reinforced concrete and 49,632 (47 per cent), masonry.

• Proceedings of the December "working" conference on school costs organized by the Building Research Advisory

(*Continued on page 290*)



Cincinnati– CITY WITH **THOROSEALED** HOMES



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October 25th,1951

Standard Dry Wall Products
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Gentlemen:

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The past winter and spring was about the coldest and dampest ever recorded in the state of Ohio. Having tried just about every waterproofing on the market without the best results, we decided to try Thoroseal.

We have built sixty-five homes so far this year. Each of these homes were given a two brush application of Thoroseal. To date we have had but one complaint, which was minor and easily stopped with Water Plug. I am thoroughly convinced and sold on Thoroseal and Water Plug. I believe it is the best waterproofing on the market today. It is superior to anything we have ever used.

Yours very truly,
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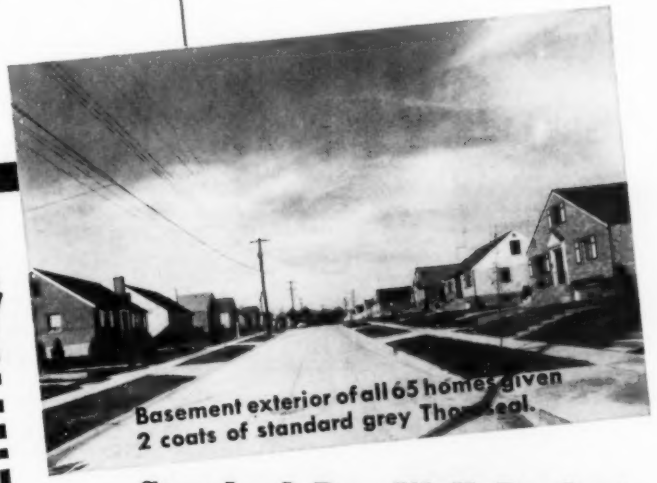
Here's a contractor who won't be annoyed with customer complaints again. To be sure that all his homes are dry, he uses the 40-year-old Thoro System Products, a name top on the list with famous contractors the world over.

Thoroseal comes in beautiful pastel colors and can be applied also to the interior surfaces of your basement walls to seal and beautify.



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THE RECORD REPORTS

WASHINGTON

(*Continued from page 286*)

Board to explore possibilities in the field of school building economies were expected to be available at fifty cents a copy around February 1. The conference, which heard estimates of the present school building deficiency as $10 billion against $5 billion available at the local level to pay for school structures, was co-sponsored by the American Institute of Architects, the Chamber of Commerce of the United States and the U. S. Office of Education. A full-scale "correlation" conference on the same subject may be held later on.

• Seventy-four per cent of Americans who bought houses during 1949 and the first half of 1950 wanted one-story structures, according to a sample survey described in "Why People Buy the Houses They Do," an article which appears in *Housing Research No. 4*, quarterly publication of the Housing and Home Finance Agency, obtainable for 30 cents from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. The article is based on a study made for HHFA by the Survey Research Center of the University of Michigan on the purchase of single-family homes by middle-income families.

• The housing likes and dislikes of U. S. farm families are analyzed in a report based on rural housing surveys just issued by the U. S. Department of Agriculture. More than half in all sections of the country except the Northeast prefer a one-story house with a basement and two porches. Other preferences: a separate dining room, plus eating space in the kitchen; basement area or workroom for laundry; in the South, a fireplace; among families who prefer a house more than one story high (the majority in the northeast), a bathroom and at least one bedroom on the first floor. The report, "Housing Needs and Preferences of Farm Families — a Comparison of Data from Studies in Four Regions," AIB-96, may be obtained from the Office of Information, U. S. Department of Agriculture, Washington 25, D. C.

• *Guide for Renegotiation of Construction and Architect-Engineer Contracts*, Renegotiation Staff Bulletin No. 12, is the new guide for renegotiation of defense contracts for construction and for architect-engineer services. The bulletin lists and discusses such factors differentiating construction from supply contracts as standardization of operations, risks, organization and capital, sources of renegotiable income, types of contracts and joint ventures. The bulletin also includes instructions to renegotiators in the evaluation of statutory factors in construction and architect-engineer cases. Copies are available at 15 cents each from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

• The Building Research and Advisory Board is surveying temporary and semi-permanent buildings on Naval establishments under a contract between the Bureau of Yards and Docks and the National Academy of Sciences. Purpose of the Survey, which will concern itself with temporary structures built in World War II, is to assist the Bureau of Yards and Docks to establish new

(*Continued on page 294*)

Perfect for that new hospital...

Amtico America's most beautiful rubber flooring!

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Gentlemen:
Please send me free box of 4" x 4" samples of Amtico Flooring in standard ⅛" gauge and all 26 stock colors—also illustrated literature.

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***Specialists in* Automatic Coal FIRING, HANDLING and CONTROL Equipment**

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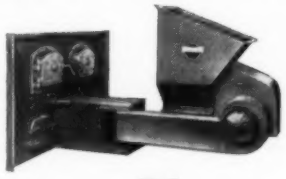
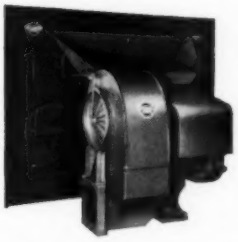


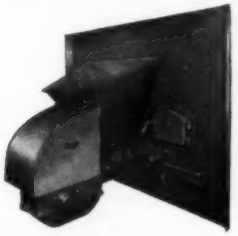
THE DURAFLEX DELUXE WORMFEED

Includes ash dump grates, unit or divided drive. For loads up to 275 H. P.



THE VULCAN RAMFEED

For use where steam demands vary rapidly and service conditions are severe. For loads up to 800 H. P.



THE LO-SET RAMFEED

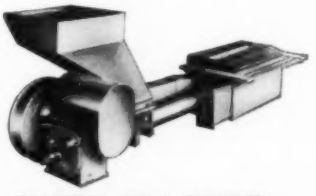
Requires less headroom, saves space and often costly pitting. For loads up to 350 H. P.

THE DURAFLEX STANDARD WORMFEED

Includes solid ash plates, heavy duty tuyeres and sectional feedworm. For loads up to 275 H. P.

LO-SET RAMFEED SINGLE ASH DUMP

For special or very narrow furnaces or boiler fireboxes.



CANTON KILN STOKER

For ceramic kiln firing.

CANTON DURAFLEX BINFEEDS
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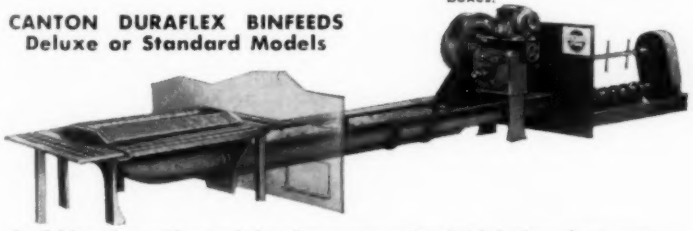
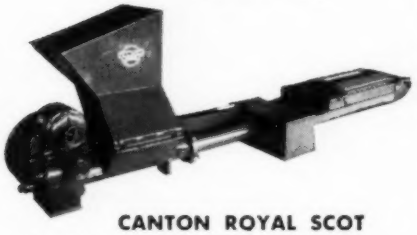
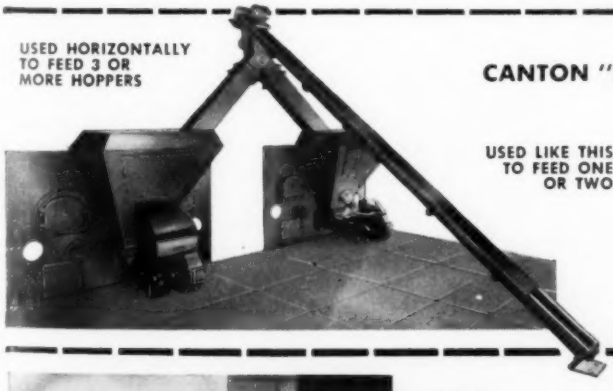


Available with or without ash dumping grates; unit or divided drives; front, rear or side boiler entry; ash sprays and furnace fronts. For loads up to 275 H. P.



CANTON ROYAL SCOT

A unit type wormfeed stoker for automatically, efficiently firing Scotch Marine boilers.



USED HORIZONTALLY TO FEED 3 OR MORE HOPPERS

USED LIKE THIS TO FEED ONE OR TWO

CANTON "FLO-TUBE" HEAVY DUTY CONVEYORS

Screw type conveyors deliver coal from bin or pile automatically . . . free men for more exacting duties. "Off-on" switches will maintain desired levels in hoppers. Capacities to 10,000 lbs. per hour. Also widely used for conveying other materials such as steel chips, grain, pellets, wood waste, sand, etc.

COAL ENTERS EXPOSED END

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Effects complete combustion. Simply "burns the smoke where the smoke begins." For boilers to 1000 H. P.

CANTON "SYNCHRO" COMBUSTION CONTROLS

Automatically adjusts fuel feed, air supply, boiler draft and combustion rates in proportion to steam demand or water and weather temperatures. Applicable to other forms of proportioning control.

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The Architect's Question Box

Published now and then in the interests of wood finishing by FIRZITE® and SATINLAC®, those two little ***WIZARDS*** *WITH* ***WOOD.***

QUESTION: Can I apply two coats of SATINLAC in one day?

ANSWER: Yes, SATINLAC drys completely in 3 to 4 hours. Consequently, it is easy to complete a two-coat SATINLAC finish in one day.

QUESTION: Do you generally advise a "light natural" finish on panelling, rather than staining and other unusual effects?

ANSWER: Definitely. Wood panelling finished with SATINLAC to bring out the natural coloring and grain characteristics assures the warmth and livability required for a "lived in" room. A natural finish retains its attractiveness throughout the years, while one frequently tires of stained finishes, which change the color of the wood.

QUESTION: The natural yellow cast of some woods such as Elm, Korina, etc. proves unattractive to many people. How can woods of this type be finished to overcome this cast?

ANSWER: A blond or pickled effect obtained with White FIRZITE and SATINLAC not only produces a beautiful "woodsy effect" but also eliminates any natural yellowish cast of the wood.

QUESTION: Must I use paste wax over SATINLAC?

ANSWER: Not necessarily. A good quality silicon polish with a high wax content can also be used.

If you have any other problems on wood finishing let us help you. Write also for specifications.

May we send you a blond Birch panel showing SATINLAC finish?

UNITED STATES PLYWOOD CORPORATION

Dept. 177, 55 West 44th Street, New York, N. Y.

THE RECORD REPORTS

(*Continued from page 290*)

standards for temporary construction in present and future building programs. Emphasis will be placed on design, construction, materials, details "and other pertinent engineering features."

• Advice to the new Republican Administration — which is getting plenty these days — is contained in a statement released by the new Housing Research Foundation of the Southwest Research Institute. Presented by C. W. Smith, the statement, entitled "Proposals for Modernizing Our Federal Housing Policies," urges that the Housing and Home Finance Agency "be permitted and directed to perform the very important function of coordination and administration for which it was created. . . . The HHFA should not be allowed to direct, dominate or control the entire home building industry no matter how well intentioned and paternalistic such efforts have been in the past."

• The Federal Housing Administration last month directed its field offices to begin permitting mortgagees to collect (and retain) any amount up to one half of one per cent on home mortgages secured under Section 8 of Title I of the National Housing Act — in effect an increase of that amount in interest rate charges.

ON THE CALENDAR

Current through Feb. 2: 1952 Building Award winners, Wisconsin Architects Association; exhibit co-sponsored by American Institute of Decorators — Milwaukee Art Institute, Milwaukee.

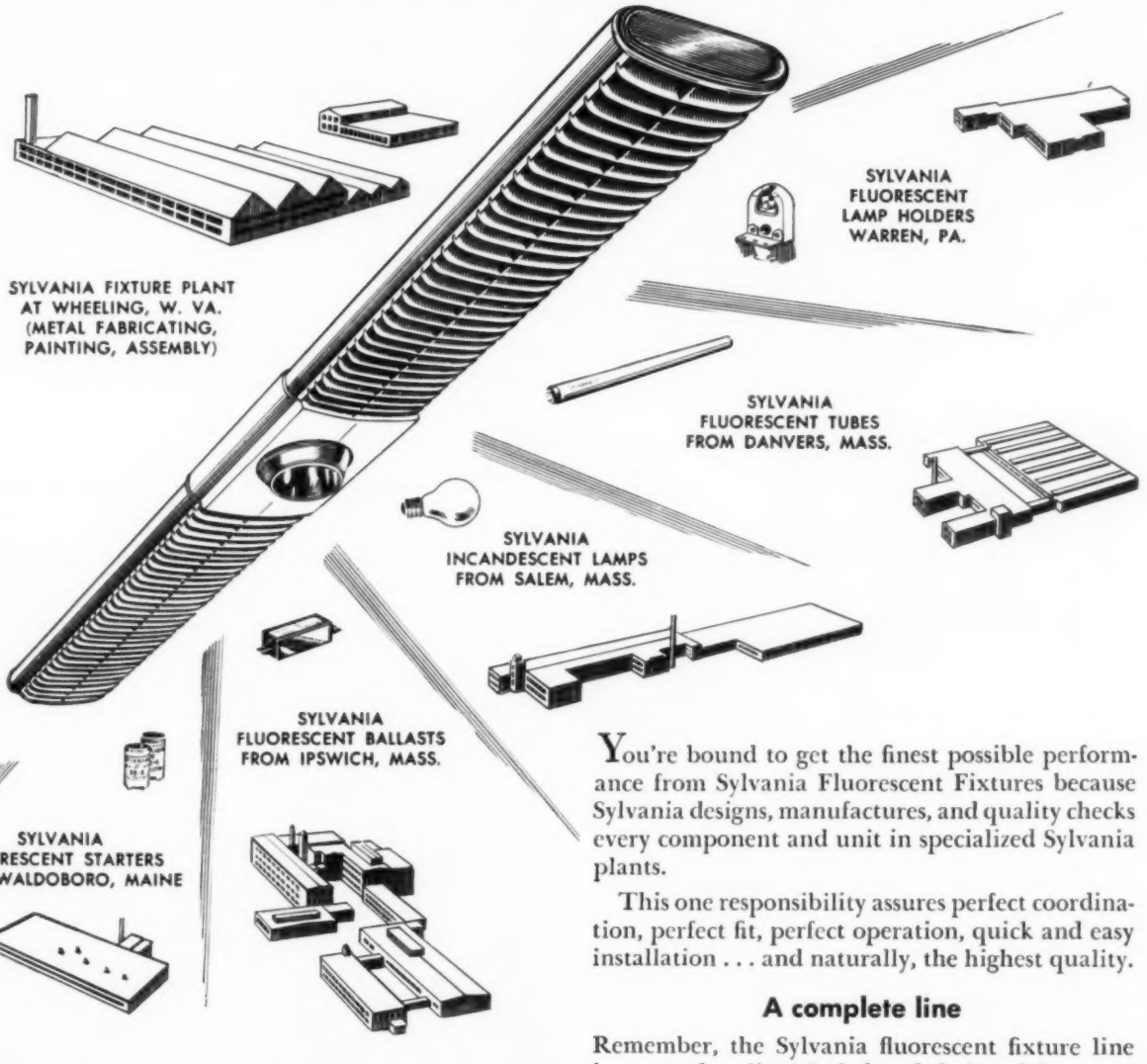
Current through Feb. 15: De Stijl: a large exhibition of painting, sculpture, architectural models and designs and furnishings executed by the masters of the De Stijl movement — Museum of Modern Art, 11 W. 53rd St., New York City.

Current throughout the year: Good Design 1953: a selection of home furnishings that have come on the market since July 1, 1952; new edition of the annual exhibition co-sponsored by the Merchandise Mart of Chicago and the Museum of Modern Art of New York — The Merchandise Mart, Chicago.

(*Continued on page 298*)

ONE MANUFACTURER... ONE RESPONSIBILITY

Guarantee "Fluorescent at its Finest"


SYLVANIA FIXTURE PLANT AT WHEELING, W. VA. (METAL FABRICATING, PAINTING, ASSEMBLY)
SYLVANIA FLUORESCENT LAMP HOLDERS WARREN, PA.
SYLVANIA FLUORESCENT TUBES FROM DANVERS, MASS.
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You're bound to get the finest possible performance from Sylvania Fluorescent Fixtures because Sylvania designs, manufactures, and quality checks every component and unit in specialized Sylvania plants.

This one responsibility assures perfect coordination, perfect fit, perfect operation, quick and easy installation . . . and naturally, the highest quality.

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Remember, the Sylvania fluorescent fixture line is a complete line. Styled and designed for every need . . . for offices, factories, stores, schools, and homes.

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Sylvania Fluorescent Fixtures are covered by a complete written guarantee which includes every unit and part. Tubes, starters, ballasts and all other components are guaranteed for one entire year from date of installation.

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FLEETLITE is a revolutionary new window—a complete year-around unit combining interior and exterior double hung windows and screen in a 4-channel extruded aluminum frame! Its advanced design makes FLEETLITE a practical, handsome unit that every architect working on home plans will want to investigate.

Architects everywhere appreciate the amazing freedom of design offered by FLEETLITE double hung windows—and the matching picture windows—in any size or shape.

The tight construction of these fabulous windows, together with the double window feature, saves fuel costs, keeps out dust and heat in warm weather. Smaller, less expensive air conditioners may be used.

Hundreds of thousands of FLEETLITE Windows have been installed in new homes throughout the U. S. and Canada. Home owners are delighted with the beauty and everlasting construction of FLEETLITE windows. It is so easy to raise the lightweight sash for ventilating the house, so easy to remove them for cleaning.

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Made by . . . **FLEET OF AMERICA, INC. • 407 Dun Building, Buffalo 2, New York**

THE RECORD REPORTS

(*Continued from page 294*)

Feb. 6–7: Midyear Conference, American Hospital Association — Hotel Drake, Chicago.

Feb. 12–14: Conference of National School Boards Association — Atlantic City, N. J.

Feb. 12–14: Annual Meeting, Church Architectural Guild of America; exhibition of recently-completed church projects — Hotel Statler, Washington, D. C.

Feb. 14–19: National Convention and Architectural Exhibit of School Buildings, American Association of School Administrators — Atlantic City, N. J.

Feb. 17–19: 49th Annual Convention, American Concrete Institute — Hotel Statler, Boston.

Feb. 18–20: Eighth Annual Conference of Society of the Plastics Industry Reinforced Plastics Division — Hotel Shoreham, Washington, D. C.

Feb. 19–21: Annual Convention, Wisconsin Architects Association — Milwaukee.

Feb. 21–Mar. 1: 1953 Exposition, Home Show of St. Louis Inc. — Kiel Auditorium, St. Louis.

Mar. 8–Apr. 8: Northwest Craftsmen: a competitive exhibition of ceramics and ceramic sculpture, jewelry, enamelwork, metalwork, wooden containers and tableware, woven textiles, decorated fabrics and lamps — Henry Gallery, University of Washington, Seattle.

Mar. 11–13: 39th Annual Convention, Michigan Society of Architects — Hotel Statler, Detroit.

Mar. 16–20: Conference, National Association of Corrosion Engineers — Chicago.

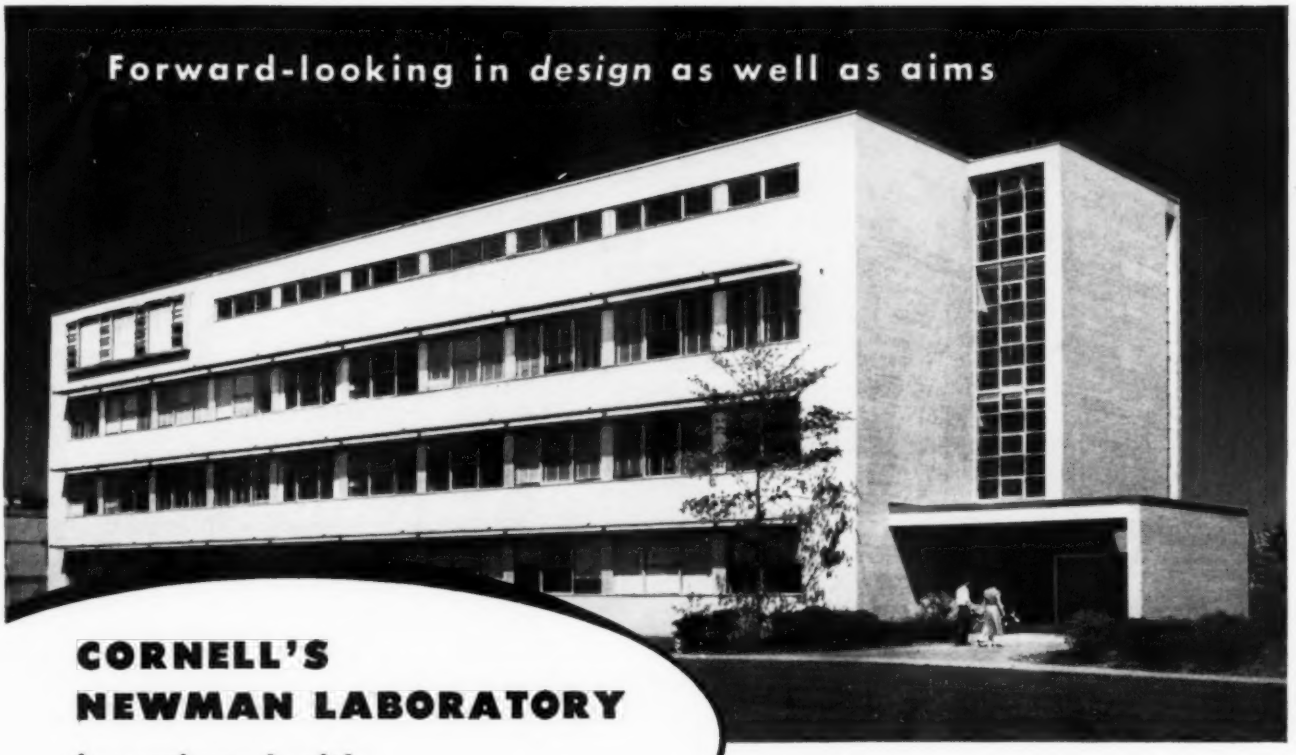
Mar. 23–27: Eighth Western Metal Exposition and Western Metal Congress, sponsored by American Society for Metals and other technical groups — Pan-Pacific Auditorium and Hotel Statler, Los Angeles.

Mar. 23–Apr. 4: York Course on Protection and Repair of Ancient Buildings. Details from Secretary, York Civic Trust, St. Anthony's Hall, Peaseholme Greene, York, England.

Apr. 6–30: Prestressed Concrete, a series of eight lectures and discussions on consecutive Monday and Thursday evenings, co-sponsored by the Portland Cement Association — Newark College of Engineering, 367 High St., Newark 2, N. J.

Apr. 6–May 10: Nineteenth Century Architecture, an exhibition — The Art

(*Continued on page 302*)

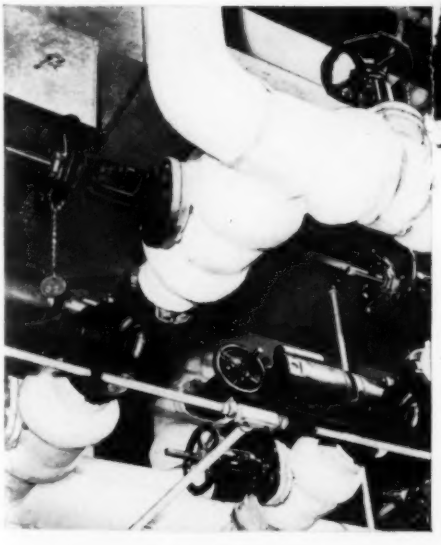


CORNELL'S NEWMAN LABORATORY

is equipped with

JENKINS VALVES

Architects: SKIDMORE, OWINGS AND MERRILL
Consulting Engineer: GUY B. PANERO
General Contractor: BARR AND BARR
Plumbing Contractor: H. J. BAREHAM AND SONS



As carefully planned as the Laboratory's program of basic research was its physical plant and equipment. Here are some of the many Jenkins Valves which serve the main laboratory (30,000 sq. ft. of working floor area) and adjoining synchrotron building. Picture shows manifold for zone heating, with hot water circulation lines.

...waters stands a modern laboratory dedicated to ... physics—investigating the elementary particles ...d equipment, the Floyd Newman Laboratory of ...nell University is a physicist's dream come true.

There are 23 laboratories, including four for radio-chemical and bio-physical research, and also dark rooms, shops, offices, synchrotron control and detector rooms, and a roof laboratory for cosmic ray research. Both the main laboratory and the connecting building housing a 300-million-electron-volt synchrotron are constructed of reinforced concrete and are completely air conditioned.

The same future-minded planning governed the specification of *all* plant operating equipment. For vital service lines, such as power and steam, Jenkins Valves were selected. This confidence in the *extra measure* of efficiency and endurance provided by Jenkins Valves is shared by the nation's leading architects, engineers and contractors.

Despite this extra value, *you pay no more* for Jenkins Valves. For new installations, for all replacements, let the Jenkins Diamond be your guide to lasting valve economy. Jenkins Bros., 100 Park Ave., New York 17.

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LOOK FOR THE DIAMOND MARK
SINCE 1864 TRADE JENKINS MARK
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Sold through leading Industrial Distributors everywhere

More Livability

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IN TODAY'S HOMES WITH

WEISWAY CABINET SHOWERS

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SMOOTH MODERN LINES

DEPENDABILITY ...THROUGH THE YEARS

Quality-built Weisways meet a major requirement in contemporary home planning, *providing extra living comfort and convenience in small area.* Complete, self-contained Weisway Cabinet Showers are the safe, dependable answer to the modern demand for more baths and better shower facilities. Walls are Bonderized, galvanized heavy-gauge steel with two separately baked on coats of enamel. Vitreous porcelain enamel receptor, acoustically insulated, has Foot-Grip, No-Slip floor—safe, positively non-absorbent, and sanitary. Write now for catalog.

Weisway **CABINET SHOWERS**

HENRY WEIS MFG. CO., Inc., *203 Weisway Building, Elkhart, Indiana*

THE RECORD REPORTS

(*Continued from page 298*)

Alliance, 251 South 18th St., Philadelphia.

Apr. 10–11: Annual Meeting, Michigan Engineering Society — Kellogg Center Hotel, Michigan State College campus, East Lansing, Mich.

Apr. 25–26: Annual Assembly, Royal Architectural Institute of Canada — Royal York Hotel, Toronto.

Apr. 25–May 2: Historic Garden Week in Virginia.

Apr. 27–May 8: British Industries Fair — Castle Bromwich, Birmingham; Earl's Court and Olympia, London. Further information from British Information Services, 30 Rockefeller Plaza, New York 20, N. Y.

Apr. 29–Sept. 7: Sculpture of the 20th Century: more than 90 sculptures by outstanding American and European artists (exhibited also at the Philadelphia Museum of Art and the Art Institute of Chicago) in the newly-designed Museum Garden, opening with this show — Museum of Modern Art, 11 W. 53rd St., New York City.

OFFICE NOTES

Offices Opened

• Daniel C. Bryant and Edward J. Walchli have announced the formation of a partnership for the general practice of architecture. The firm will be known as Bryant and Walchi, Architects, and will be located at 105 W. Adams St., Chicago 3, Ill.

• Fred W. Butner, Jr., A.I.A., has opened an office for the practice of architecture at 420 W. Fourth St., Winston-Salem, N. C.

• Morris A. Hall announces the formation of the firm of Morris Hall, Architect, with offices at 120 Fifth St., N.E., Atlanta, Ga.

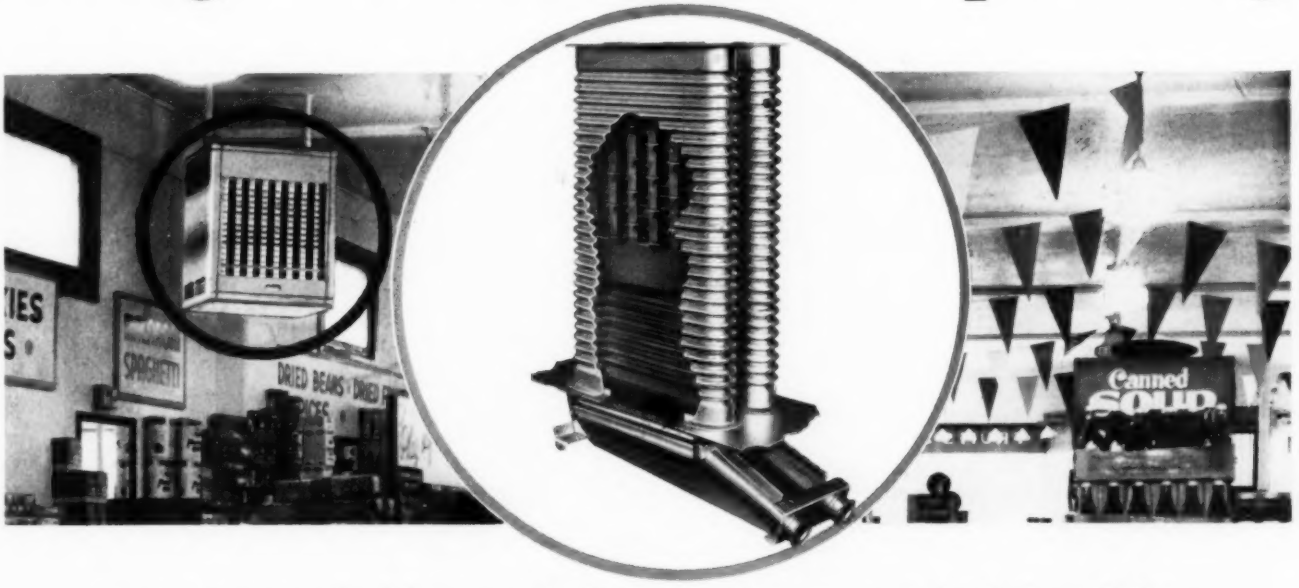
New Firms, Firm Changes

• The firm of Michael J. DeAngelis, with main offices in Rochester, N. Y., announces the enlarging of its Philadelphia office at 125 N. Broad St., Philadelphia, Pa. David Gould will be Philadelphia representative for the firm.

• Glenn E. Benedick and John W. Hines, Architects, announce the formation of a partnership for the practice of

(*Continued on page 306*)

In the year 2000...this ®Janitrol all-steel heat exchanger could *still* be operating



Here's remarkable proof of Janitrol's unmatched durability ...No other equipment is backed by this calculated performance.

After twelve years service, a Janitrol Steel Unit Heater was removed from a New Jersey delicatessen store and tested by one of the country's leading research institutes. By exacting, microscopic examination and measurement it was found that weight loss due to pitting and corrosion of the steel heat exchangers was *less than standard mill rolling tolerances allowed for this steel.*

While this unit used manufactured gas with a sulphur content averaging 10.5 grains, the maximum pit penetration rate varied from 0.04 to 1 mil per year indicating 48 years of life expectancy.

Therefore, heat exchangers of this Janitrol design, installed under similar circumstances could be expected to last beyond the year 2000.

It must be remembered that no other gas-fired unit heater has the unique Janitrol design of heat exchanger and burner combination principle that minimizes the possibility of corrosion and burn-outs... maintains even metal temperatures from the bottom to top of the heat exchangers.

So, these results cannot be obtained from ordinary "fire-box" design equipment with its problems of varied metal stresses and strains.

DURABILITY DEPENDS ON DESIGN NOT METAL THICKNESS ALONE!

Here then, is further evidence of Janitrol Complaint-Free Engineering, a result of tireless effort in research and development to provide better performance with lower maintenance costs.

THIS LITERATURE CAN BE HELPFUL IN MANY WAYS

The Commercial and Industrial Heating Guide, A.I.A. File 30, gives complete data on the application of gas-fired unit heaters to meet a wide variety of heating problems.

"Businessman's Blue Book of Better Heating" illustrates actual unit heater installations in many different types of buildings . . . you'll find both, useful reference material.

"The Janitrol Space-maker" booklet gives details on the remarkable life-tests and describes the new Janitrol Horizontal Gas Unit for commercial and residential installations.

WRITE FOR YOUR COPIES TODAY

SURFACE COMBUSTION CORPORATION · TOLEDO, OHIO

THE RECORD REPORTS

(*Continued from page 302*)

architecture. The firm will be known as Benedick and Hines, Architects, and will have offices at 254 Laura, Wichita, Kan.

• Ralph Bodman and Richard C. Murrell, Architects, announce the addition of William Bailey Smith as a partner in their firm and a change of the firm name to Bodman & Murrell & Smith. Offices of the firm will remain at 1172 Nicholson Drive, Baton Rouge, La. Raymond G. Post, Ula L. Manning and W. Benton Harelson remain as associates of the firm, and Kenneth C. Landry has been named an associate.

• Roland M. Aubin, architectural consultant, and John Cadman, design consultant, are members of the firm of Walter J. Douglas Associates, which is now located at 1005 Farmington Ave., West Hartford, Conn.

WEATHER STRIPS FOR SLIDING DOORS

Scenery At Its Best

With SLIDING DOORS...

WEATHER-PROTECTED BY "ACCURATE"

All over America, home owners have discovered a new freedom, a new enjoyment, by having their residences designed with Sliding Doors. The growing popularity of Sliding Doors has been stimulated by the successful weather-protection insured by "Accurate" metal door saddles, sheaves and fittings. Architects recognize this and are careful to specify "Accurate" for satisfactory performance.

ACCURATE

For doors and windows of all types, "Accurate" Metal Weather Strip is unsurpassed. Write for working drawings, or if you prefer

ASK FOR ILLUSTRATED FOLDER

ACCURATE METAL WEATHER STRIP CO., Inc.

215 EAST 26th STREET, NEW YORK 10, N. Y.

• John C. Sherrick, Architect, is now in charge of the New York Office of Holabird & Root & Burgee & Associates, Architects-Engineers-Consultants. The firm's New York address is 41 E. 42nd St.

• MacEwen, Hall & Ferguson, Architects, announce a change in name and firm to Hall & Ferguson, Architects, and the opening of his private office by Harry A. MacEwen, Architect. The firm of Hall & Ferguson remains at 811 Bankers Insurance Bldg., Macon, Ga., with J. Edmund Ferguson and Francis K. Hall as partners and Wm. Cobb Matthews as associate. Mr. MacEwen's office will be located at 102 Champion Bldg., Albany, Ga.

• Daniel D. Merrill, A.I.A., has announced his association with Herbert W. Holmgren, to form the partnership of Merrill and Holmgren at 125 Broad St., New York 4, N. Y.

• Charles H. Muhlenberg Jr. and Frederick R. Shenk, partners in the firm of Muhlenberg Bros., Architects, announce the addition of Lee V. Seibert as a partner. The firm is located at Old Wyomissing Rd. and Evans Ave., Wyomissing, Pa.

• Palmer, Fisher, Williams & Nes, Architects, announce a change in firm name to Fisher, Williams, Nes & Campbell. The firm is located at 1020 St. Paul St., Baltimore 2, Md.

• The firm of Eugene Schoen & Sons, Architects and Engineers, announces the formation of a new firm, Schoen & Hennessy. Lee Schoen and Thomas Hennessy, Architects, will be partners in the firm and Eugene Schoen, Architect, will be architectural and decoration consultant. Commissions held by the old firm will remain its responsibility and the firm name and accounts will continue in existence as long as necessary. New commissions will be undertaken by the new firm, which will remain at 19 E. 53rd St., New York 22, N. Y.

• John Howard Stevens, A.I.A., announces the merger of his architectural practice with the firm of James C Saunders and Associates to form a partnership which will be known as Stevens and Saunders. Partners in the firm will be John Howard Stevens, A.I.A., John Calvin Stevens 2nd, A.I.A., and James

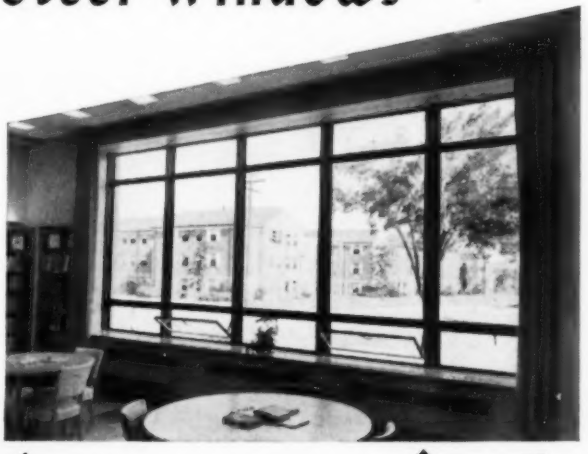
(*Continued on page 310*)

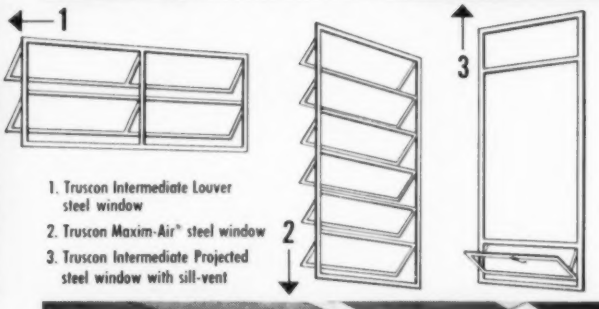
Cleveland Heights Public Library, Cleveland Heights, Ohio
Garfield, Harris, Robinson and Schafer, *Architects*
Alger-Rau, Inc., *General Contractors*

New Cleveland Heights Library...

Luxuriously Day-Lighted Through Truscon Steel Windows

Libraries can be bright and cheerful, too . . . as the City of Cleveland Heights, Ohio, proves in this striking new cultural building. It is especially well-lighted and well-ventilated because it is well-windowed with Truscon steel units. Here, Truscon windows complement the long, low, sweeping architectural lines; they allow ample daylight; they operate easily; and, they require an absolute minimum of maintenance. Ventilators permit a precisely-controlled flow of fresh air . . . even at the height of blustery Great Lakes winters. Thanks to a fine selection of Truscon steel windows, more people will find pleasure in reading, in Cleveland Heights.





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THE RECORD REPORTS

(*Continued from page 306*)

Cooper Saunders, A.I.A. The firm will have offices at 187 Middle St., Portland 3, Me.

• Hart Wood, F.A.I.A., and Edwin Weed, Architect, announce a change in their firm name to Wood, Weed & Associates, and a change in address to 2nd Floor, Hawaiian Life Bldg., Honolulu, Hawaii.

New Addresses

The following new addresses have been announced:

Edward J. Aisner, Architect, 10 Newberry St., Boston 16, Mass.

H. L. Allbright, Architect, 2311 Albans, Houston, Tex.

Atwood Associates, Architects-Engineers, 10 Newberry St., Boston 16, Mass.

Miss Elizabeth Boyter, Architect, 2535 Le Conte, Berkeley 4, Calif.

Wm. F. Bigoney, Jr., A.I.A., 921 Sunrise Lane, Atlantic & Sunrise Blvds., Fort Lauderdale, Fla.

James L. Brandt, Architect, 3208 Beford Ave., Raleigh, N. C.

Philip Brezner, Architect, 8215 Marygrove Dr., Detroit 22, Mich.

Arthur W. Brown, Architect, Adden, Parker, Clinch & Crimp, 21 Highland Ave., Wayland, Mass.

Robert W. Carr, Architect, 914 Vickers Ave., Durban, N. C.

Goleman & Rolfe, Architect, 5100 Travis, Houston, Tex.

Arq. Bernardo Contreras, Apartade 3560 E. Ste., Caracas, D.F., Venezuela, South America.

Wm. Corlett, Architect, 347 Clay St., San Francisco 5, Calif.

Robert W. Cummins, Architect, 1638 Merabeate Ave., New Orleans 22, La.

Donovan Dean, Architect, P.O. Box 310, Lakeland, Fla.

George H. Dey, Architect, 11716 Detroit Ave., Cleveland 7, Ohio.

Maj. Dean A. Eichelberger, Architect, 5010 Camp Wing Air, Inst. Sqdn, A.P.O. 937 c/o P.M., Seattle, Wash.

Engelhardt, Engelhardt and Leggett, Educational Consultants, 551 Fifth Ave., New York 17, N. Y.

Cristobal B. C. Espina, Architect, Rt. No. 15, Juana Osmena, Cebu City, Philippines.

Glenn G. Frazier, Architect, 102 So. Bennett Ave., Urbana, Ill.

Gordon Frittenburg, Architect, 548 Arbor Rd., Queen Elizabeth Gons, Lakeview, Ont., Canada.

Eugene Fuhrer, Architect, 5228 University Ave., Chicago 3, Ill.

Wm. H. Furst, Architect, 1515 Sherman Ave., Evanston, Ill.

Wm. Fred Gray, Architect, 3505 Gramercy, Houston, Tex.

Harold N. Herman & Assoc., Inc., Architects, 617 Vine St., Cincinnati 2, Ohio.

Kenneth J. Higgins, Architect, Chandler Drive, Fair Lawn, N. J.

Roy A. Johnson, Architect, P.O. 222, Westbury, Long Island, N. Y.

Boyd Jossy, Architect, 322 E. 12th, The Dalles, Ore.

Lewis D. Klein, Architect, 1674 Harold Drive, Dayton 6, Ohio.

Pedro L. Koe-Krompecker, Architect, Koe & Kow, A.P. 4891, Caracas-Este, Venezuela, South America.

A. S. Kolm, Architect, 599 Elmdale Court, Holland, Mich.

(*Continued on page 314*)

SLIDE-VIEW Sliding Glass Doors and Windows let eye-saving daylight flood the room. Slim steel sections provide maximum glass areas with maximum strength.

SLIDE-VIEW assures year-around comfort. Screened doors and windows, sliding smoothly and silently at a finger's touch, admit just the right amount of fresh air desired. Complete weatherstripping keeps out dust, rain and cold.

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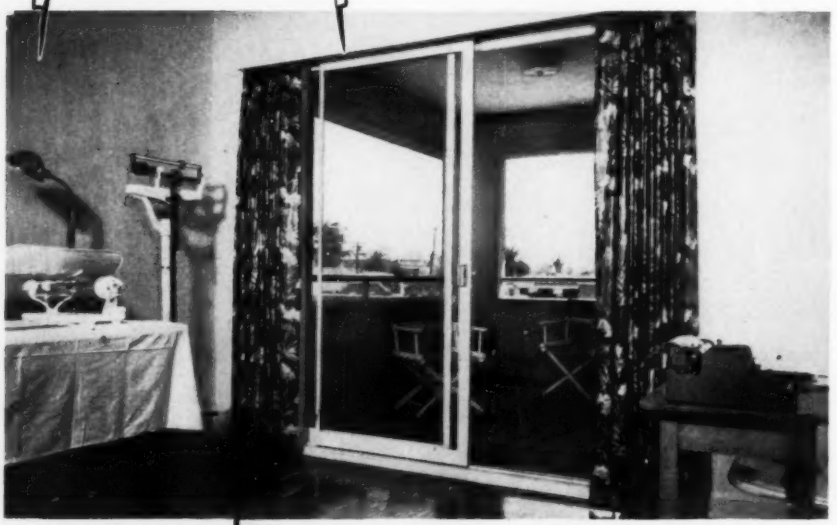

Above: Nursery School for Visually Handicapped Children, Los Angeles, designed by Paul R. Williams

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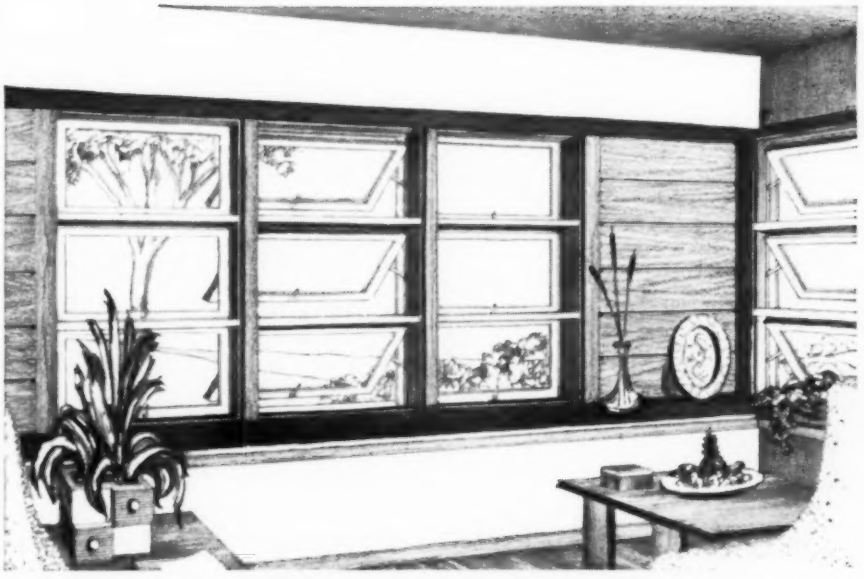

"You can keep them open even when it's raining" is a powerful appeal for awning windows. But when it comes to controlling moisture, *wood* awning window units have still another major advantage. Wood, high in insulating value, discourages condensation—the drip—drip—drip that can prove so annoying to home owners.

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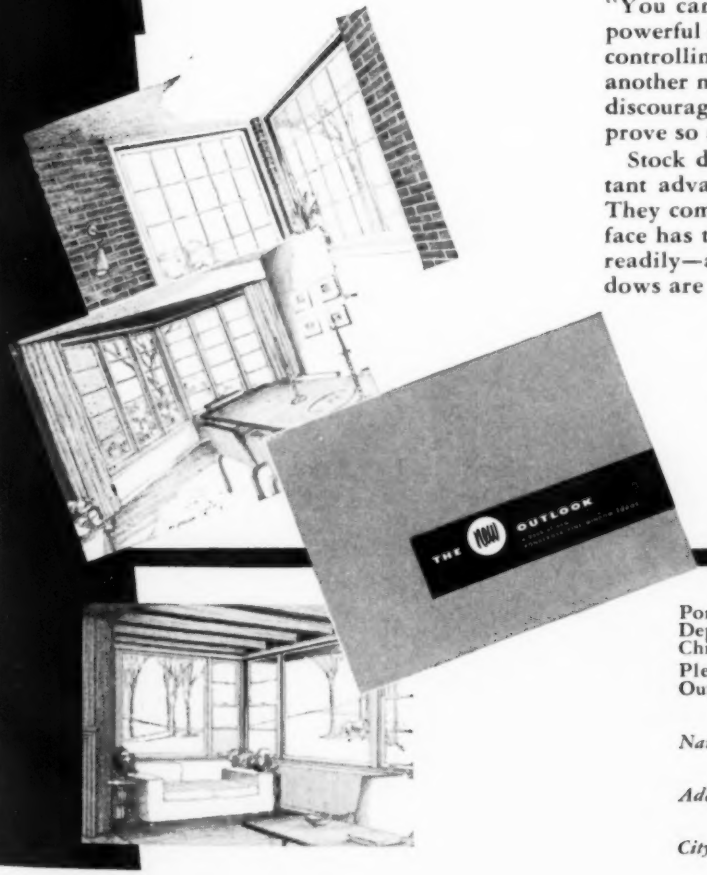

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THE RECORD REPORTS

(*Continued from page 310*)

R. H. Lane, Architect, Rt. 2, Chehalis, Wash.

John E. Lindabury, Architect, 910 Mesquite Lane, Victoria, Tex.

Wm. T. Marrero, Architect, 21 E. Bellevue Place, Chicago 11, Ill.

L. McCord, Architect, 242 Alexander, Rochester 4, N. Y.

McMinn & Norfleet, Reg. Arch., P.O. Box 988, Greensboro, N. C.

Monroe, Licht & Higgins, Architects, 1501–1505 First National Bldg., El Paso, Tex.

Edmond A. Pachner, Architect, Paramount Bldg., Palm Beach, Fla.

George Pierce, A.I.A., 2200 Welch St., Houston 19, Tex.

Charles L. Pincu, Architect, 311 North St., Pittsfield, Mass.

Charles G. Polacek, Architect, 2803 No. 7th Ave., Phoenix, Ariz.

Joseph J. Rauch, Architect, 514 W. Wyoming Ave., Philadelphia, Pa.

John Lyon Reid, Architect, 1069 Market St., San Francisco, Calif.

Harold C. Rosenberg, Architect, 843 Peachtree St., N.E., Atlanta, Ga.

Channan D. Sambor, Architect, 1932 Hennessy Place, New York 53, N. Y.

David L. Samuels, Architect, 2929 Forest, Dallas 15, Tex.

Edwin J. Schruers, Architect, Chateau Bleu, 1901 Jackson St., San Francisco, Calif.

George Shubin, Architect, 4326 Sherbrooke St. W., Westmont, Que., Canada.

H. H. Sorrells, Architect, 100 Harvard Drive, Spartanburg, S. C.

Joseph Stein, Architect, 168 Grand St., Waterbury, Conn.

Walter F. Swensson, Architect, 2200 Bennett Ave., Evanston, Ill.

Arch. Haluk Tarhan, 528 Stewart Ave., Ithaca, N. Y.

Evan M. Terry, Architect, 646 Brown-Marx Bldg., Birmingham, Ala.

A. S. Timoshenko, Architect, 30–11 Parsons Blvd., Flushing, N. Y.

Carlos Perez Tiribelli, Architect, Calle N. 14, No. 866, La Plata, Fcngr, Argentina, South America.

Weaver & Drover, Architects, 128 E. Camelback, Phoenix 43, Ariz.

Kenneth C. Welch, A.I.A., 924 Grandville Ave., S.W., Grand Rapids, Mich.

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AT THE COLLEGES

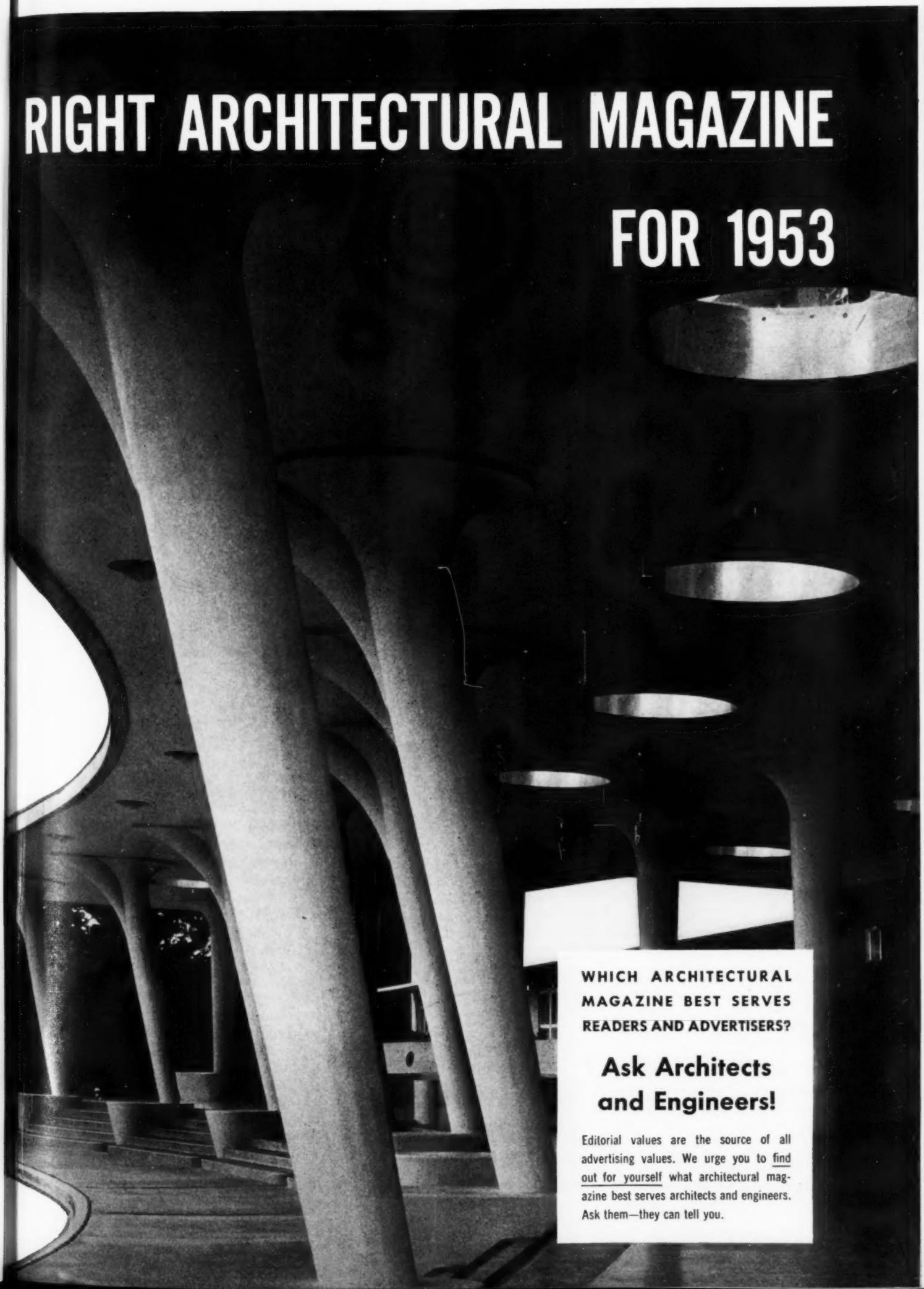
N. C. State Names Acting Head For Architecture Department

The School of Design of North Carolina State College has appointed Eduardo F. Catalano as acting head of its Department of Architecture. Mr. Catalano is a native of Argentina and was trained in that country and at Harvard University. He came to North Carolina in 1951, prior to which he taught at the Architectural Association School in London.

Other new appointments also announced by the school are as follows: Horacio Caminos, also from Argentina and recently at the AA School in London, visiting associate professor of architecture; Lewis Clarke, instructor in landscape architecture; Ray Howard, instructor in design; Richard P. Lewman, instructor in architecture.

Visiting lecturers at the school for periods of a week to a full term will include George Boas, Howard Deastyne, Richard Buckminster Fuller, Richard

(*Continued on page 318*)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(*Continued from page 314*)

Kelly, George Nelson and Robert Royston.

Fellowship in Architecture Announced by Princeton

The School of Architecture of Princeton University has announced the 1953 Lowell M. Palmer Fellowship in Architecture. Open to citizens of the United States who hold a bachelor's degree, will be less than 27 years of age on October 1, 1953 and are in good physical condition, the fellowship carries a stipend of $1200 and includes all privileges of a Fellow of the University, including residence in the Graduate College buildings if the winner is unmarried. Purpose of the award is to assist a student of unusual promise to undertake the advanced study of architecture at Princeton, including research in architectural composition in the Architectural Laboratory, and opportunities offered by close affiliation of the School of Architecture, the Bureau of Urban Research, the Department of Art and Archaeology and other graduate departments of the university. Particular attention will be given to the candidates' achievements in architectural design, personal qualifications, scholastic records and professional experience. Applications, together with supporting documents, must be received no later than March 1, 1953. Awards will be announced April 1. Application blanks are available from the Secretary, School of Architecture, Princeton University, Princeton, N. J.

Hitchcock Library Report Published by California

The School of Architecture of the University of California at Berkeley has published a report on its architectural library by Henry-Russell Hitchcock. The report analyses the facilities of the library, its relation to the school's central library, its operative procedures and its special problems. It includes suggestions for future development.

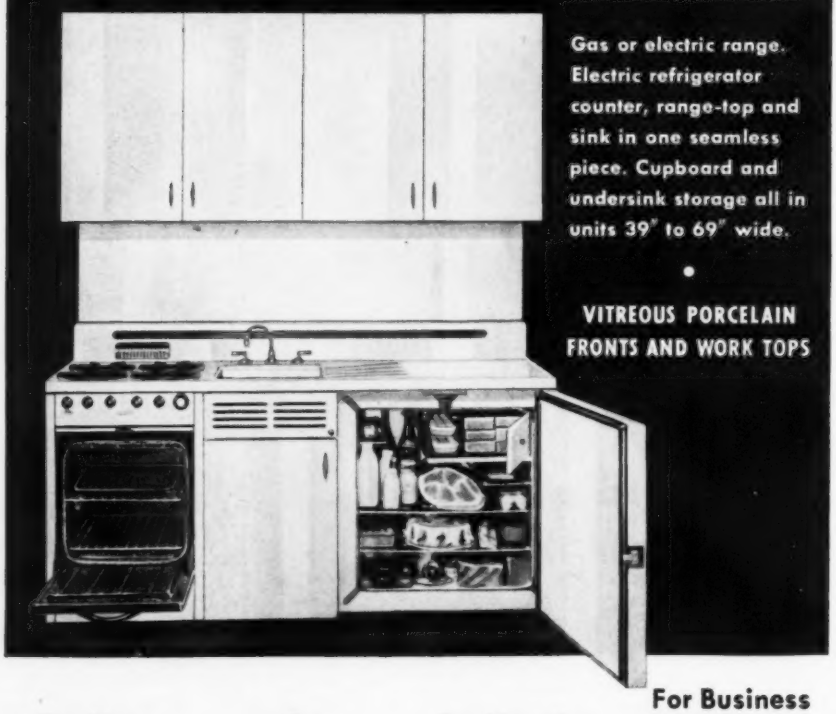
Appended to Mr. Hitchcock's report is a report by Librarian Arthur Waugh, a discussion of the slide filing system with a pictorial catalog by Raymond W. Jeans, and a discussion of slides, color photographs and projection equipment by Roy Flamm. William W. Wurster, dean of the School of Architecture, contributed a foreword to the volume.

COMPETITIONS

• Ponderosa Pine Woodwork, an association of manufacturers of Ponderosa Pine panel doors and other woodwork, has announced a national architectural design competition for an interior panel door design which offers $7600 in awards and possible purchase of designs suitable for mass production. The "Ponderosa Pine Panel Door Design Competition" has been approved by the Committee on Architectural Competitions of the American Institute of Architects, and has as its purpose the development of an interior door design "suitable for mass production and consistent with current standards of architectural design." A special feature of the contest is a group of special school and student awards. Although students will be in open competition for the main prizes, a separate judging will be held for entries sub-

(*More news on page 322*)

DWYER KITCHENS



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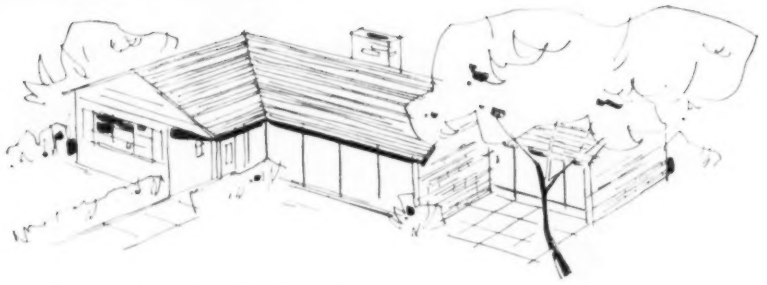

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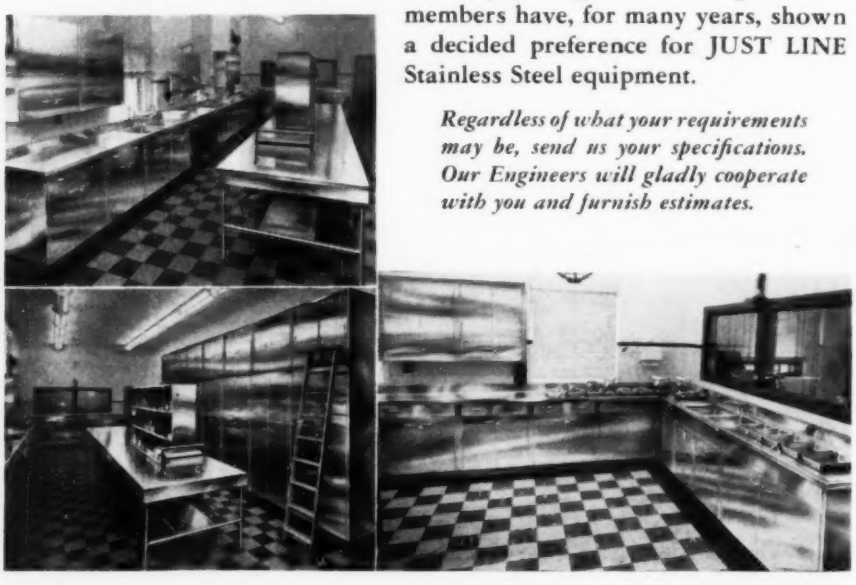

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THE RECORD REPORTS

(*Continued from page 318*)

mitted through architectural schools which have indicated an intention to participate. The student entry judged best will be awarded $500, and the school attended by the winning student will also receive a $500 award.

Main prizes for the competition are as follows: first, $2500; second, $1500; third, $1000; eight honorable mentions, $200 each. The competition closes April 27, 1953 and will be judged by a committee which includes architects and designers. A program of the competition may be obtained from Ponderosa Pine Woodwork Competition Headquarters, 2907 W. Pico Blvd., Los Angeles 6, Calif.

• The sixth annual design competition of the Engineering Undergraduate Award Program sponsored by the James F. Lincoln Arc Welding Foundation and offering a total of $6750 in awards is open to undergraduate students in all branches of engineering. The awards will be made on the basis of submitted papers of not more than 20 pages which describe the arc welded design of either a machine, machine component, structure or structural part. Papers may be submitted in mechanical or structural divisions, with duplicate awards being offered in each division. The contest closes on June 29, 1953. A booklet outlining rules and conditions and containing suggestions for subject matter, a bibliography and illustrations of previous award winners is available from the James F. Lincoln Arc Welding Foundation, Cleveland 17, Ohio.

$150,000 BEQUEST AIDS A.I.A. EDUCATION FUNDS

The American Institute of Architects has accepted a bequest of more than $150,000 to be added to its scholarship and educational funds. The gift, not previously announced, was made by Mrs. Antoinette Perret of Rockport, Mass., and was accepted by the directors of the Institute during its semi-annual board meeting.

Mrs. Perret died last June, leaving her residuary estate to the Institute. She was the widow of Galen Perret, an architect and A.I.A. member. Her gift brings the Institute's total educational endowment to approximately $750,000.

(*Continued on page 326*)

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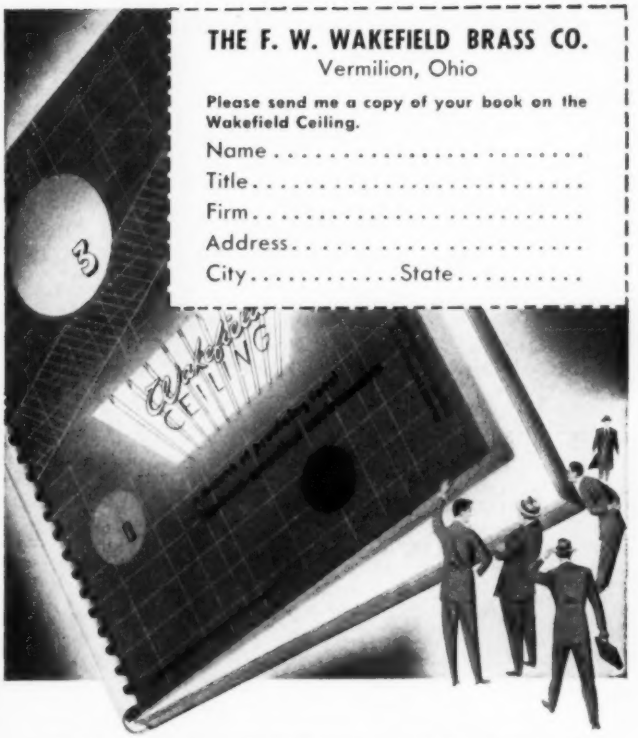

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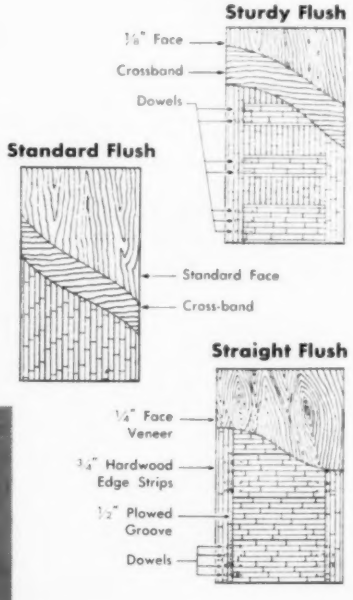

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THE RECORD REPORTS

(*Continued from page 322*)

in addition to other endowment funds of the organization which are also available for educational purposes. Income from the funds is used by the Institute principally to aid advanced study and research in architecture, and composes the principal source of support for work in this field.

OBITUARY

FRANCIS DE N. SCHROEDER, editor of *Interiors* magazine for the last eleven years, died December 27 in Naples, Italy, where he had been vacationing. Mr. Schroeder's death followed a heart attack. He was 51 years old. After graduating from Harvard University, where he was an editor of *The Lampoon*, Mr. Schroeder wrote articles for *Time* and *Life* magazines from 1929 to 1938. He specialized in foreign news and traveled through Italy, Sweden, Russia, Rumania and Spain. Mr. Schroeder became editor of *Interiors* in June, 1941.

MRS. JULIA RUGE SAMSTAG, executive secretary of Eggers & Higgins, Architects, died on January 2 in New York City at the age of 51. Mrs. Samstag had been a member of the firm for 32 years and was the only member of the architectural profession in the Seraphic Secretaries of America, of which she was a former vice president and a member of the board of directors.

HUGH TALLANT, retired New York architect, died Dec. 9, 1952 in Savannah, Ga., where he had lived in recent years. He was 82 years old. Mr. Tallant was born in Nantucket, Mass., and was graduated from Harvard in 1891 with the degrees of A.B. and A.M., following which he went to Paris to study architecture. He received his diploma from the Ecole des Beaux Arts, together with the Grand Medal of Honor, in 1896. On his return to New York he formed the firm of Herts & Tallant, which was responsible for the Brooklyn Academy of Music and several of the leading Broadway theaters, among other works. The firm continued in existence until 1911, following which Mr. Tallant became a member of the firm of Lord, Hewlett & Tallant. He left this firm in 1916. In the thirties he retired from active practice. Mr. Tallant is survived by a sister, Dr. Alice Weld Tallant, of Philadelphia.

(*More news on page 330*)

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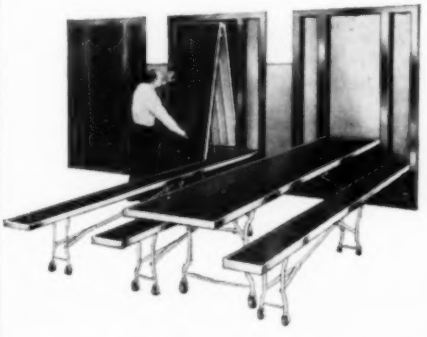

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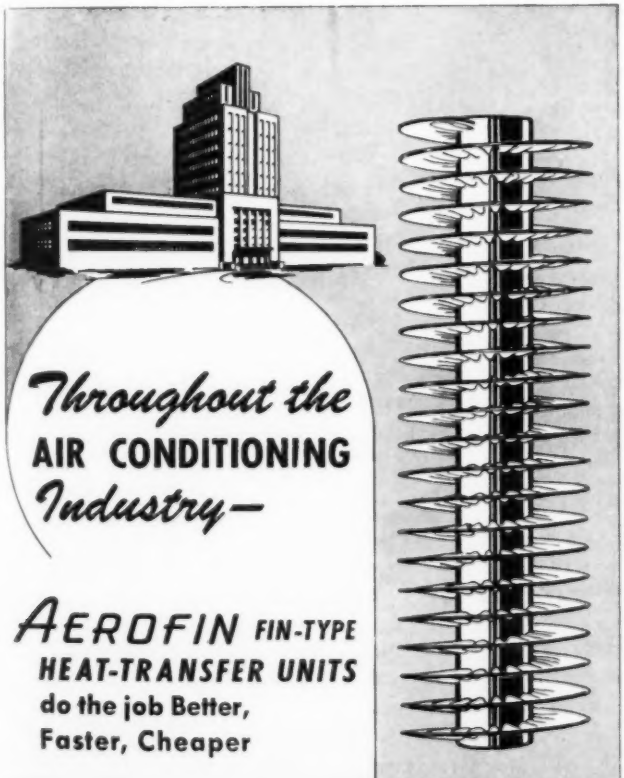

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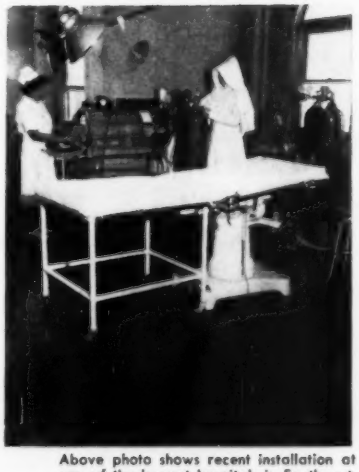

Above photo shows recent installation at one of the largest hospitals in Southwest, St. Joseph's, Albuquerque, N. M.

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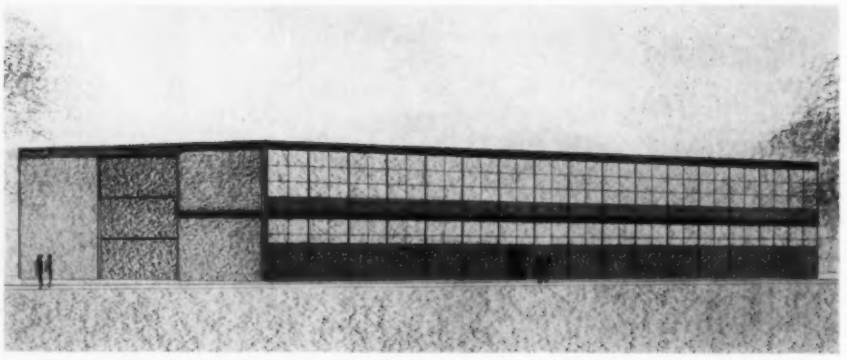
THE RECORD REPORTS

(*Continued from page 326*)

MIES DESIGNS NEW LAB FOR RAILROAD RESEARCH

A new laboratory for use primarily for mechanical engineering has been designed for the Association of American Railroads Central Research Laboratory on the Illinois Institute of Technology South Side campus in Chicago by Ludwig Mies van der Rohe, the Institute's director of architecture. The Association dedicated its original laboratory on the campus in May 1950 and intends the second laboratory to enlarge present facilities for an accelerated program of railroad research.



Mies van der Rohe's new building for Association of American Railroads Central Research Laboratory on Illinois Institute of Technology campus, to cost $350,000

The new building will be a one-story welded steel frame structure with the large glass panels characteristic of Mies van der Rohe's work. It will have aluminum window casings and sections of buff brick. It is designed to harmonize in general with the other buildings of Illinois Tech's new campus, designed entirely by Mies van der Rohe.

While essentially a one-story building, the new structure will have a mezzanine extending the entire length of the building on the front side. It will extend across one third of the width. In the open bay there will be a traveling crane to move heavy equipment.

Facilities will include a lubrication laboratory, a refrigeration laboratory, a mechanical laboratory and a machine shop. One of the main pieces of machinery will be a drop test machine which drops a weight of 27,000 lb, used primarily to test the capacity of draft gears. The mezzanine floor will be used mainly for storage; under it will be two offices, a washroom, locker room, tool room and the machine shop. On the south end of the building there will be a vertical lift door to allow locomotives and railroad cars to be brought in for testing.

One particular problem was created by the drop test machine; a concrete caisson will have to be sunk down to bedrock (about 80 ft) to counteract its vibrations.

(*More news on page 332*)

SEAPORCEL... CROWNING GLORY FOR THE LARGEST INDOOR RODEO ARENA IN AMERICA

GENERAL CONTRACTORS J. A. Jones Construction Co., Atlanta, Ga. Butler & Cobbs, Montgomery, Ala.
ARCHITECTS & ENGINEERS Sherlock, Smith & Adams, Inc. Montgomery, Ala.

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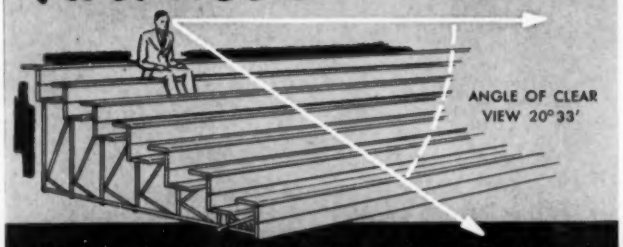

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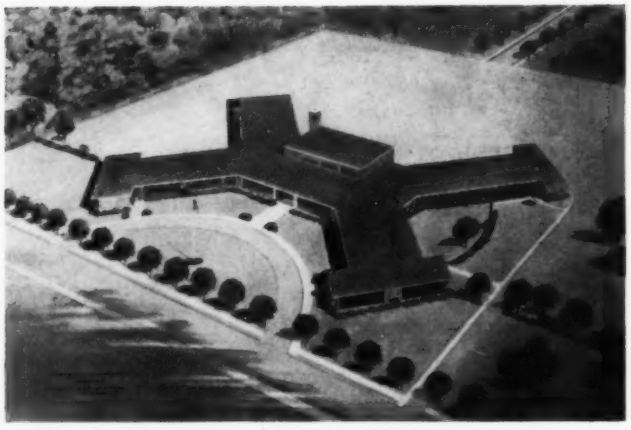

The Northside School at Levittown, New York, heated by radiant heat. Frederic P. Wiedersum, Architect; Courter & Co., Heating Contractors; Piping by Carl Pipe Bending Corporation.

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(*Continued from page 330*)

OFFICES HERE OPEN TO STUDENTS FROM ABROAD

Nearly a hundred American architectural firms are prepared to place foreign architectural graduates on their staffs under a new "Interneship in Architecture" program organized by the American Institute of Architects. An equal number of firms are ready to sponsor and advise foreign students planning to study and travel in the United States.

Ralph Walker with some of the foreign architectural graduates already in this country. Left to right: Guy Alain Chauvel of Paris, Hipolito C. Ponce of Manila, Mr. Walker, Vicente C. Ponce of Manila and Toshikazu Kodera of Tokyo

Ralph Walker, A.I.A. past president, announced the program before his recent retirement from the chairmanship of the A.I.A.'s International Relations Committee. Mr. Walker, who noted that 46 architectural offices located in all parts of the United States are already training foreign graduate students as part of the program of international cooperation, said the A.I.A. program would be of direct value in the effort to provide technical assistance to underdeveloped countries.

A directory listing names and addresses of the firms which have indicated their willingness to participate has been sent to architectural societies in 35 countries.

Mr. Walker chats with Niels Enevoldsen of Copenhagen, a graduate of the Royal Academy of Copenhagen, now here

(*More news on page 334*)

ARCHITECTS: COOLIDGE, SHEPLEY, BULLFINCH AND ABBOTT

use Van's long experience on hospital food service

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The Hamilton Hotel of Laredo, Texas installed Modu-aire, usAIRco's individual conditioning units of fan and coil design, in free standing cabinets. Three Freon-12 type compressors in the basement provide cooling to two water chillers when summer cooling is required. An instantaneous "flash" heater of shell and tube design was installed to heat the water for winter conditioning. Engineer: George R. Rhine and Co. Contractor: M. F. Fisher and Sons.

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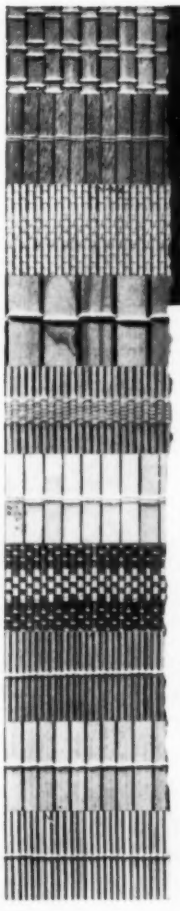

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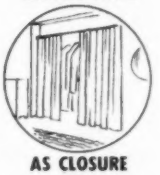
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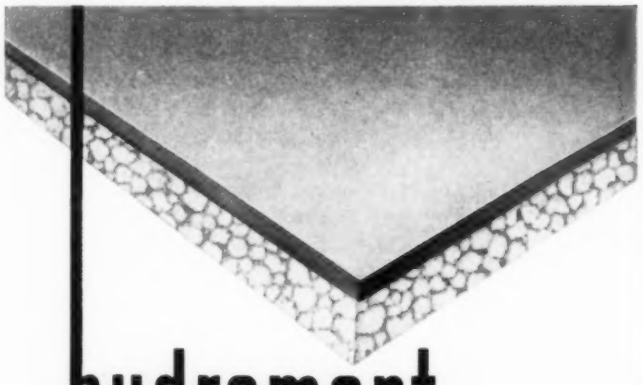

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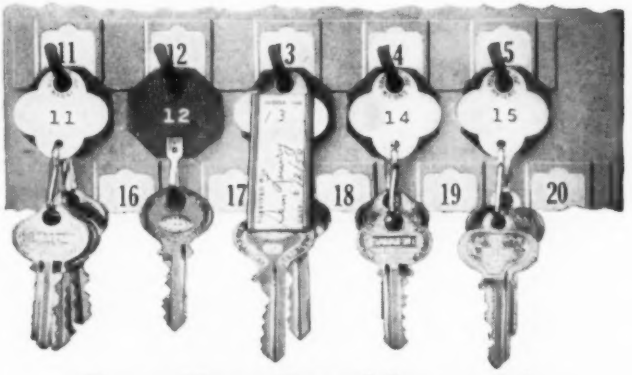

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(*Continued from page 332*)

SIX BUILDINGS HONORED AS OFFICES OF THE YEAR

Lever House in New York City and the *Sacramento Bee* offices in Sacramento, Calif., won the top spots in this year's edition of the "Office of the Year" awards sponsored annually by the magazine, *Office Management and Equipment*. The awards are based on a poll of members of the American Institute of Architects, the American Institute of Decorators and the Association of Consulting Management Engineers.

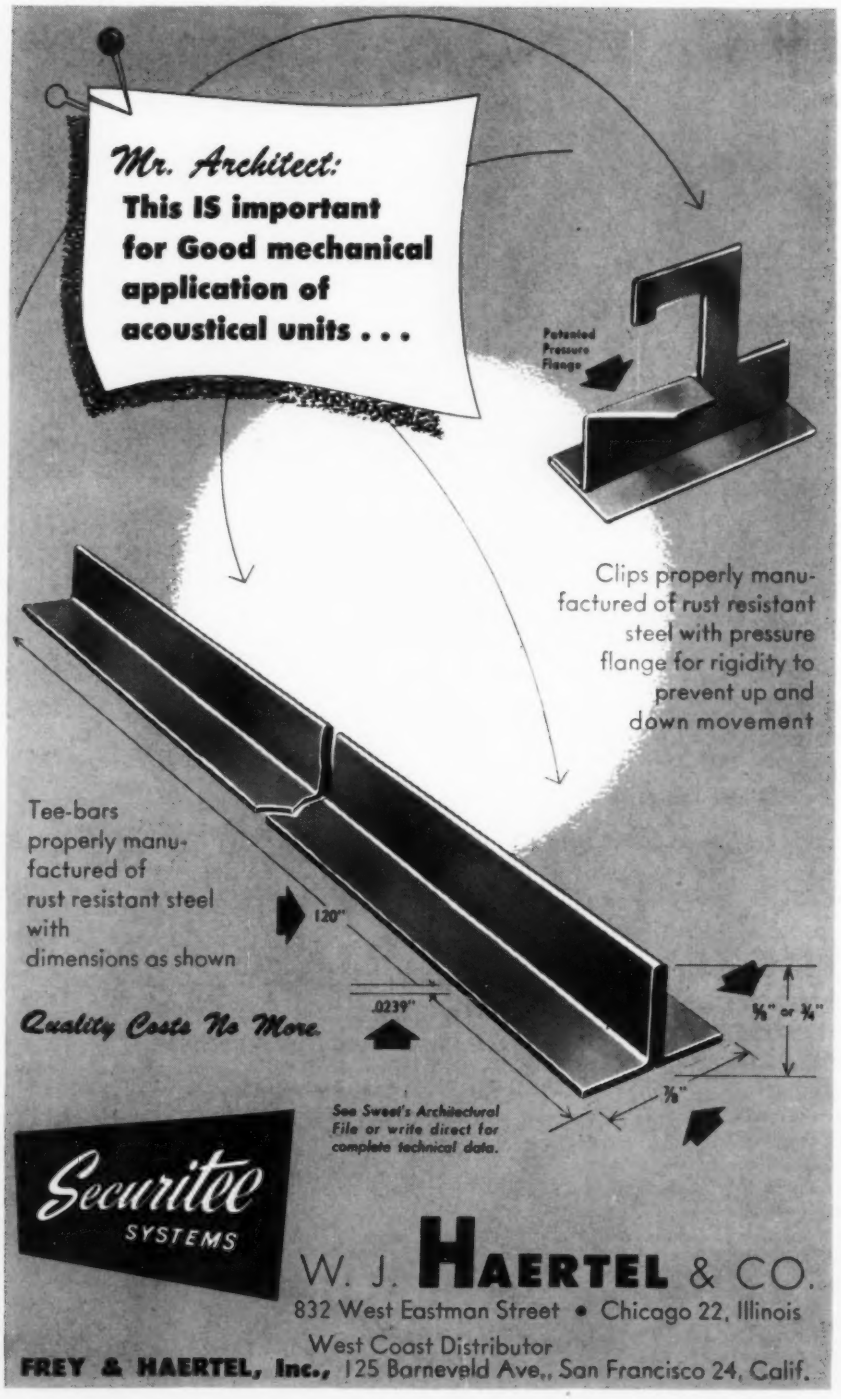
Architects of award-winning offices were photographed at the presentation luncheon with Donald McAllister, general manager of Office Management and Equipment. They are: William T. Snaith, Raymond Loewy and Associates, New York; William York Cocken, Pittsburgh; Dunbar Beck, Sacramento, Calif.; David Elwell, Lockwood Greene Engineers, New York; Mr. McAllister; Carter E. Hewitt, Hewitt & Bastian, Peoria, Ill.; Claude E. Hooton, New Orleans; and W. S. Brown, Skidmore, Owings & Merrill, New York

Offices to be cited are divided into two classifications: large offices employing more than 500 persons and smaller offices employing less than 500. The purpose of the awards, which were inaugurated in 1950, is to give official recognition to outstanding achievement in design, layout and equipment among American offices in commerce, industry, finance and government.

Lever House was cited as "Office of the Year" in the large office category; architects were Skidmore, Owings & Merrill; interior designer, Raymond

(*Continued on page 336*)

Entrance to the Sacramento Bee offices, top winner in smaller office category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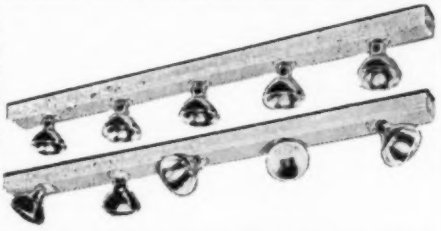

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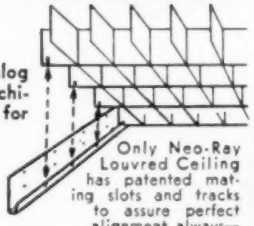

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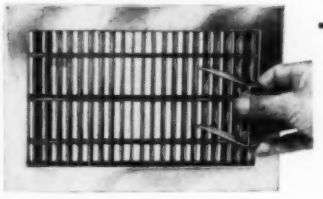

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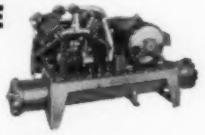

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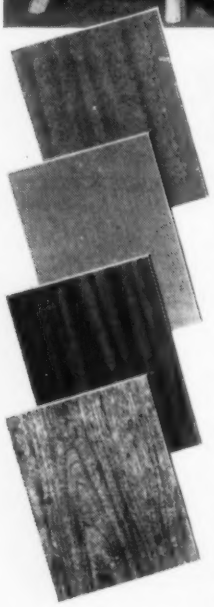

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THE RECORD REPORTS

(*Continued from page 334*)

Loewy Associates. *The Sacramento Bee* was chosen as "Office of the Year" in the smaller office division; architects were Dunbar Beck of Sacramento and Lockwood Greene Engineers Inc. of New York.

In addition to the major awards, for which silver plaques were given, there were two honorable mentions and bronze plaques in each category:

Larger offices — Prudential Insurance Company of America for its new Southwestern offices in Houston, Tex., Kenneth Franzheim, architect; and United States Steel Corporation, for its new Pittsburgh offices, Harrison & Abramovitz and William York Cocken, architects.

Smaller offices — Pan American Life Insurance Company, New Orleans, Skidmore, Owings & Merrill and Claude E. Hooton, architects; and the Toledo, Peoria and Western Railroad, East Peoria, Ill., Hewitt & Bastian, architects.

Above: Editorial Department of the Sacramento Bee, "Office of the Year" in small offices division; below: horseshoe-shaped copy desk was specially designed

(*More news on page 338*)

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Everyone who supervises or directs building or other construction projects must have a basic working knowledge of the various trades engaged in the project, in order to direct operations intelligently.

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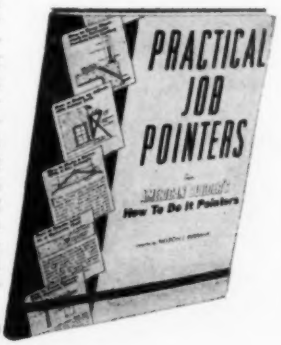

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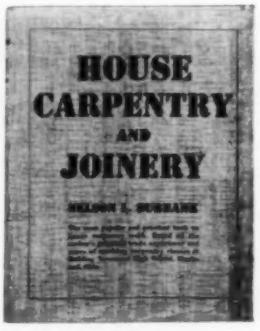

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THE RECORD REPORTS

(*Continued from page 336*)

National Bureau of Standards Central Radio Propagation Laboratory near Boulder: one-story wings from central spine

STANDARDS BUREAU STARTS RADIO LAB IN COLORADO

The Central Radio Propagation Laboratory of the National Bureau of Standards will be housed in a new building now going up on a 210-acre site near the campus of the University of Colorado south of Boulder. Pereira and Luckman and J. E. Stanton of Los Angeles are architects and engineers, with Robert W. Ditzen of Boulder, associate architect.

To Cost $4,500,000

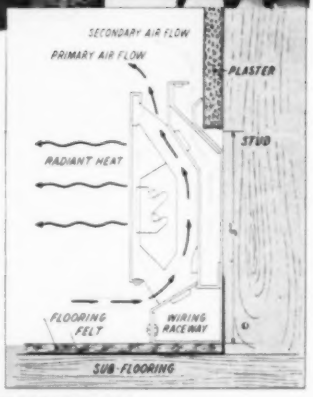
The building, which is expected to cost $4,500,000, will provide facilities for research on the propagation of radio waves and on the expanded utilization of the radio spectrum now being used for FM, television, facsimile and radar.

The laboratory will be constructed of reinforced concrete with stone facing at the main entrance and at other portions of the exterior. It will have a central spine and one-story wings extending outward from either side of it. The front of the building is four stories high, reducing to one story at the rear of the central spine, thus taking advantage of the sloping terrain that rises toward the mountains to the west. A pair of wings join the spine at different floor levels. The central spine is designed so that wings may be added to meet future laboratory requirements.

PBS Directs Construction

Construction is under the direction of the Public Buildings Service of the General Services Administration, Washington, D. C. Completion is scheduled for early 1954. About 500 employees — including scientific and clerical personnel — are expected to be on the staff of the new laboratory by mid-1954.

(*More news on page 340*)



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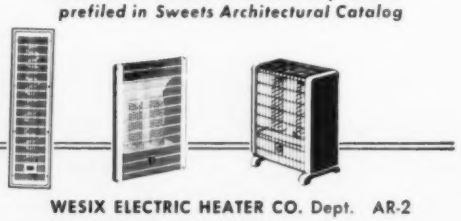

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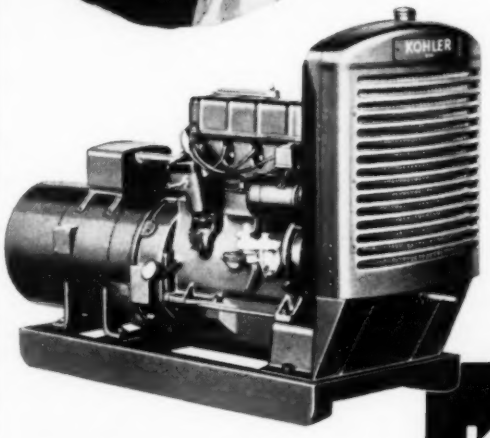

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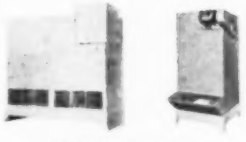

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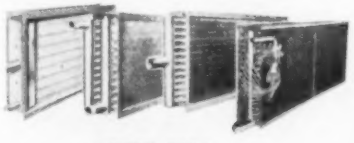

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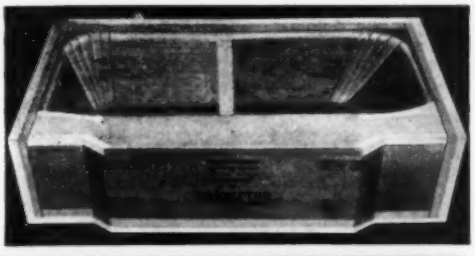

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THE RECORD REPORTS

(*Continued from page 20*)

Domus

October 1952

Among features of interest in this issue of the Italian periodical is a photographic tour through Le Corbusier's own apartment, both living and working quarters. Describing the apartment, the

Bearding Le Corb in his den — two discreet peeks into the place the French architect calls home. Left, his living room. Right, part of his studio

magazine comments:

"Le Corbusier himself is the main interest in this apartment: it is like looking into his brains, and his personality and his mental tools are apparent everywhere. It's home for him and it is like his coat of arms for us; every bit of it is so much like himself, as it happens only for the work of a genius." Two views of the apartment are shown on this page.

The Architect's Journal

November 13, November 27, 1952

Astragal on the U.N.: turning his attention from UNESCO (see ARCHITECTURAL RECORD, January 1952, page 290) to U.N., the Journal's commentator reviews opinions on the recently completed General Assembly Building and adds a few of his own. "UNO or MGM?" is the title, and it runs as follows:

"'Is this,' says the current issue of *Architectural Forum*, 'the bankruptcy of the international style or does it mean a turning point of modern architecture?' 'Is it,' asks *Life* magazine, 'a kind of modern Noah's Ark for all species of men?' — or is it, as U. S. architect Paul Rudolph suggests, 'nothing but a background for a Grade B Movie with Rita Hayworth dancing up the main ramp?' Your guess is as good as mine, as we must all judge only from photographs, which is something no critic ought ever to do — but if you want my guess, my sympathies lie with Mr. Rudolph. The golden sloping walls of the main hall, however acoustically ingenious they may be, look restless and mi[illegible]tory,

(*Continued on page 342*)

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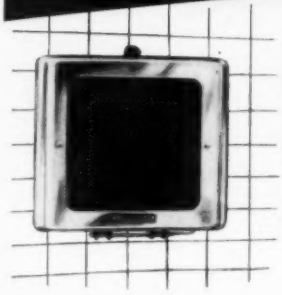

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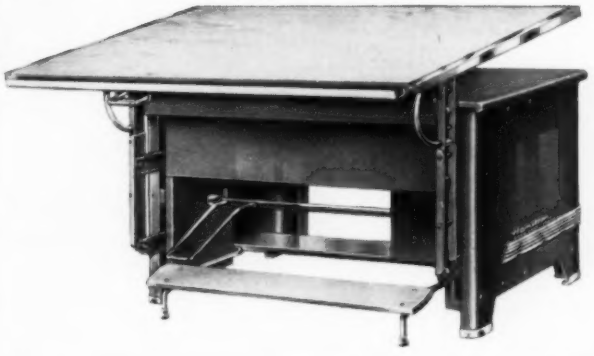

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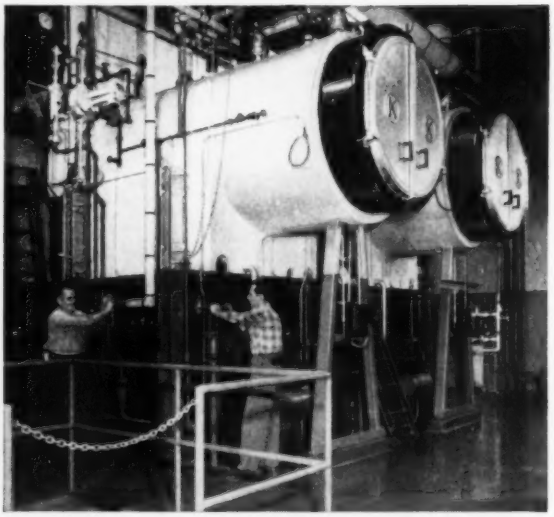

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THE RECORD REPORTS

(*Continued from page 340*)

succeeding only — as Rudolph says — in 'symbolizing a world crashing in upon itself' within this gilded cage. The eye swims unhappily in search of rest and coherence like a fly round a lampshade, recoiling with understandable vehemence from Leger's over-dominant murals, the harshly emphasized horizontals of the gallery, or the *BIF*'ish [ed. note: BIF = British Industries Fair] display behind the rostrum. Taken individually, the units of which this room is composed are unexceptionable. Together they fail to build up into a composed and disciplined interior — a fault, incidentally, with which some critics have accused the Royal Festival Hall, and of which acoustic science may be the cause. No such excuse, however, can be lodged in defence of the entrance lobby with its vertical and horizontal elements locked in a fibrous plaster battle which is as phoney and theatrical as if Cedric Gibbons himself were in charge of the set.

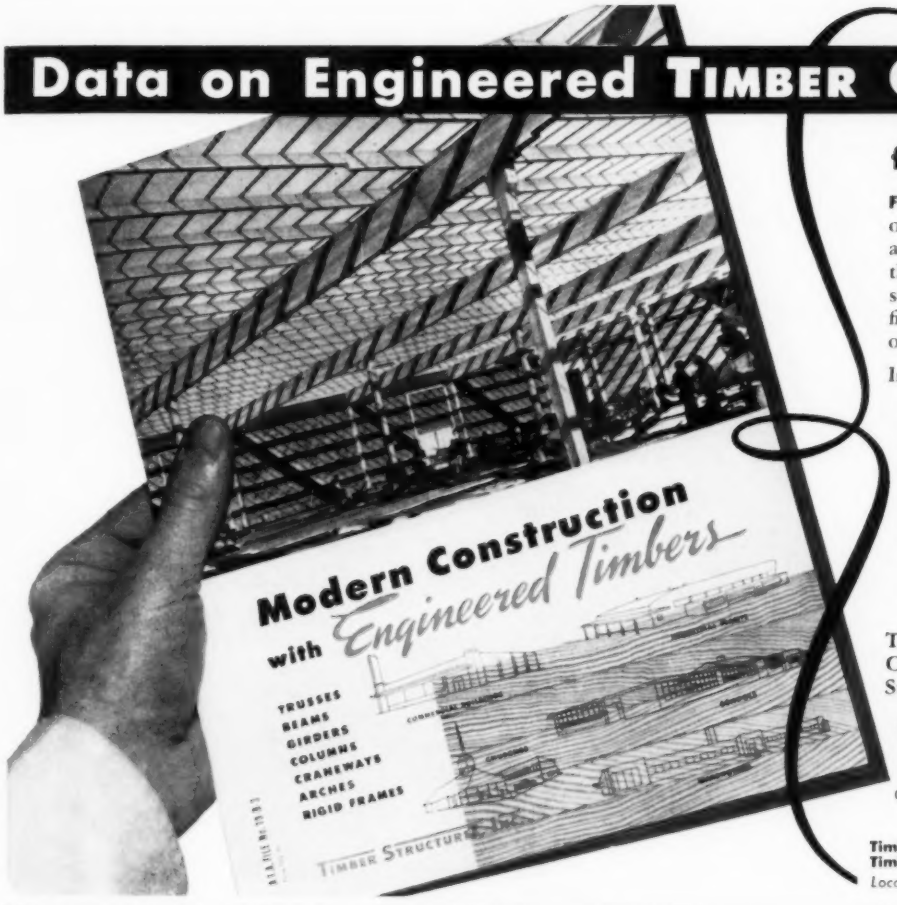
"Now we all know Wallace K. Harrison to be an able and sensitive architect: we all know, too — and it's worth repeating — that it's impossible to judge from photographs. All the same, in *Astragal's* view this interior is a major disappointment, and it's no comfort either to be reminded that Britain's contribution — an oak-panelled meeting room with some indescribably trivial carvings by John Skeaping — is a disappointment, too."

• Footnote to *Astragal* on UNESCO: T. S. Eliot's manifesto in a letter to *The Times* of London (see *Perspectives*, page 9) on UNESCO's proposed Paris headquarters provoked some answering observations from *Astragal:*

"Nothing delights *Astragal* more than to see 'intelligent laymen' butting in on the world of architectural criticism. Very welcome, if typically obscure in phrasing, therefore, was T. S. Eliot's letter to *The Times* on the subject of the UNESCO building. (How few architects would be equally courageous and admit in a letter to *The Times* that they did not understand what Mr. Eliot was driving at in his latest poem.) Nevertheless, his assumption that the purely technical faults of the UNO (sic) build-

(*Continued on page 344*)

Data on Engineered TIMBER Construction



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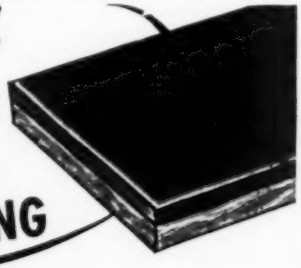

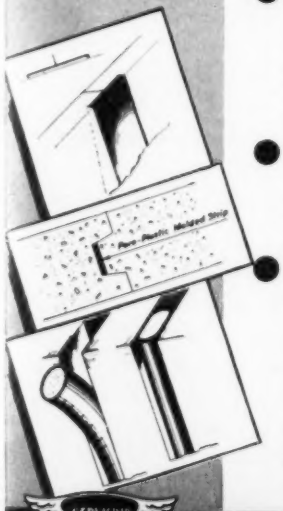

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THE RECORD REPORTS

(*Continued from page 342*)

ing must be repeated in the UNESCO building because of a broad similarity in the shape of the main blocks, is really rather foolish. His aesthetic comments are more to the point, even if one doesn't always agree. *Astragal* has always thought the 'honeycomb' analogy for slab blocks rather superficial: the scenery of the Bois seems to be just the sort of loosely planted landscape that can act as a foil to the rigid but romantic shapes of the UNESCO scene. Whether the general assembly will agree with T. S. Eliot and the Seine Prefecture or with *Astragal* remains, at the time of going to Press, to be seen."

AMERICANS ABROAD

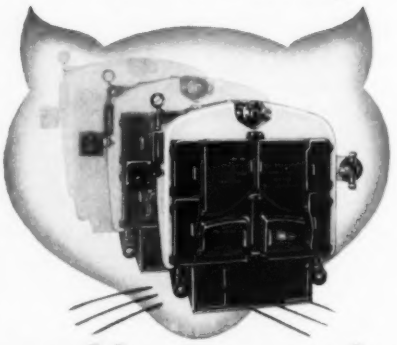
• The hospital design issue of *L'Architecture Française* (reviewed on page 20) contains several examples of work done by American architects. Included are an office building for two doctors in Pasadena, Calif. — Smith and Williams, architects; an office in Hollywood, Calif. — Randall Duell, architect; a hospital in Denton, Tex. — Bennet and Crittenden, architects; and a group office building in Seattle, Wash. — Smith, Carrol & Johanson, architects. All of these buildings have been presented to American readers in ARCHITECTURAL RECORD.

• Two structures in Michigan are featured in the December 1952 issue of *L'Ossature Metallique*. The technical center for General Motors in Detroit, Saarinen & Associates, architects, is given a six-page presentation, and two pages are devoted to a grandstand for the Michigan Racing Association, also at Detroit, Giffels & Vallet, Inc., L. Rossetti, architects. (ARCHITECTURAL RECORD, November 1952, p. 346.)

• The December 1952 issue of the Japanese magazine *Sinkentiku* devotes six pages to an illustrated article on the work and influence of Marcel Breuer as architect and teacher. The article was reprinted from the May 1952 edition of *House & Home*.

(*More News on page 346*)

When considering a boiler today



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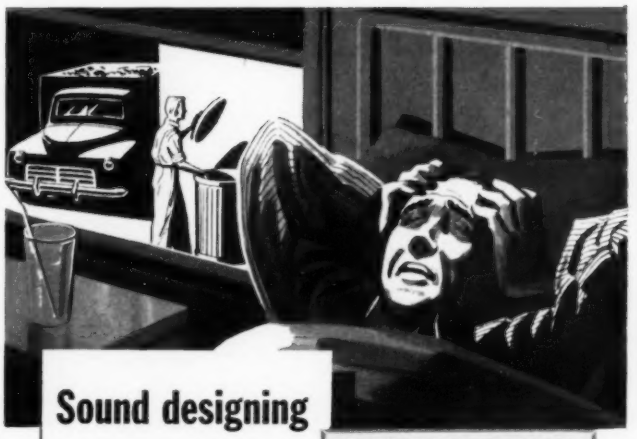

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THE RECORD REPORTS

(*Continued from page 344*)

GOOD DESIGN 1953 OPENS; 275 PIECES IN DISPLAY

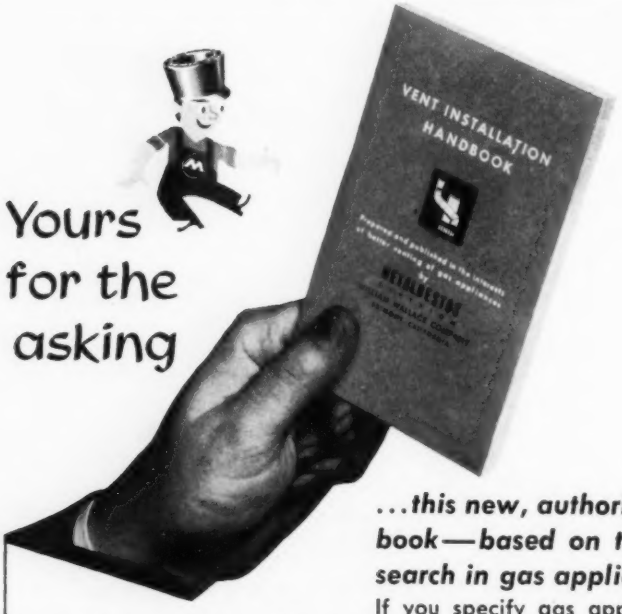
The new edition of "Good Design," sponsored jointly by the Museum of Modern Art and the Merchandise Mart, opened January 8 at the Mart. Approximately 275 items were selected from more than 6000 entries — a record number of submissions — by a committee composed of Chairman Edgar Kaufmann Jr., director of Good Design for the Museum; D. J. DuPree, president of Herman Miller Furniture Company; and Russel Wright, home furnishings designer. The committee made its choice from among items placed on the market since July 1, 1952. The new selections will replace the ones that have been on view since last January at the Mart. They will be installed, together with items selected last June, in a newly designed setting by Alexander Girard, architect and designer, whose fabric designs were among last June's Good Design selections. The exhibit will remain on view at the Mart until next January, while selections from choices made this January and next June will be exhibited at the Museum in New York next fall.

According to Chairman Kaufmann, the new selections show an apparent change in emphasis of materials both in furniture and furnishings. Of 25 pieces of furniture selected, he reports, only a few have black iron frames — a decline in the use of the material as compared with entries in other recent shows. The previous interest in basketry for plates, bowls and the like, has been supplanted by a tendency toward the use of wood for such items.

Other notes: for the first time, the show will include no lamps, since none were considered "sufficiently satisfactory" to be included; 18 wall papers will be shown, the large number resulting from an "exceptional interest and cooperation" on the part of the industry; more dining room and kitchen cutlery than usual will be exhibited.

(*Continued on page 348*)

Two furniture designs by Danish architect Hans Wegner, made in Denmark



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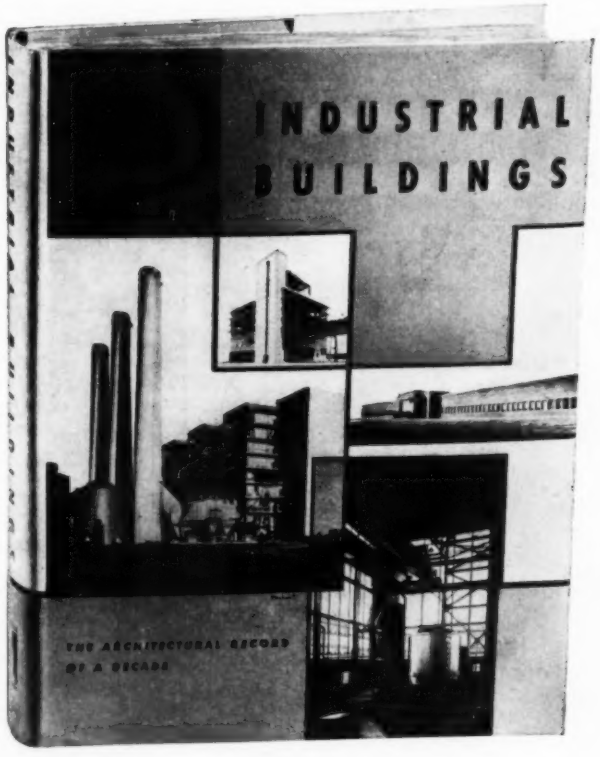

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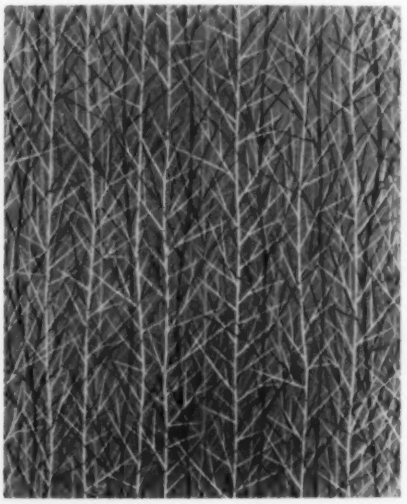
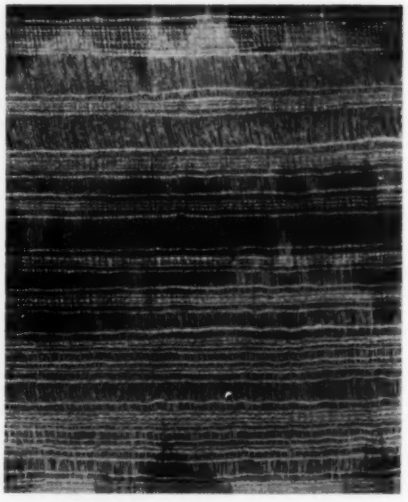
THE RECORD REPORTS

(*Continued from page 346*)

Good design in decorative patterns: top, wallpaper designed by Francis Mair; center, drapery by Jack Lenor Larsen; bottom, drapery fabric by Olga Lee Baughman





(*Continued on page 350*)

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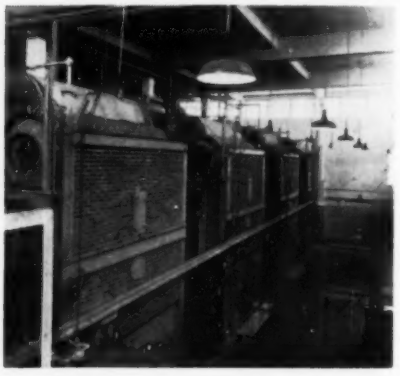

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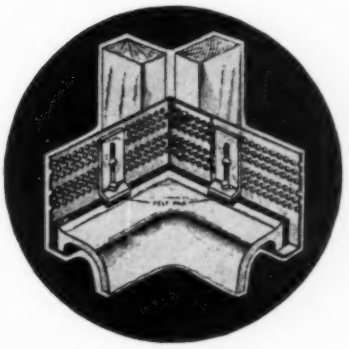

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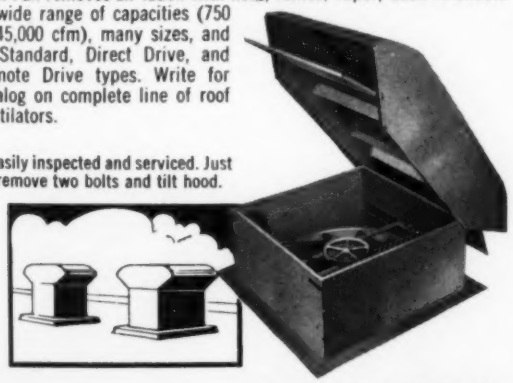

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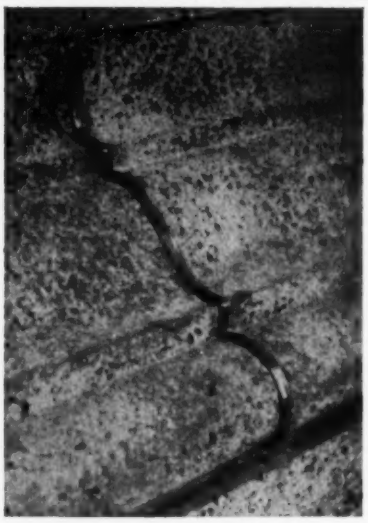
THE RECORD REPORTS

(Continued from page 348)

More Good Design: above, wooden Keyaki bowls designed by Takahashi

Above: foldaway snack table designed and manufactured by Ernest Sohn. Below: stoneware teakettle, like bowls top of page, is a Takahashi design



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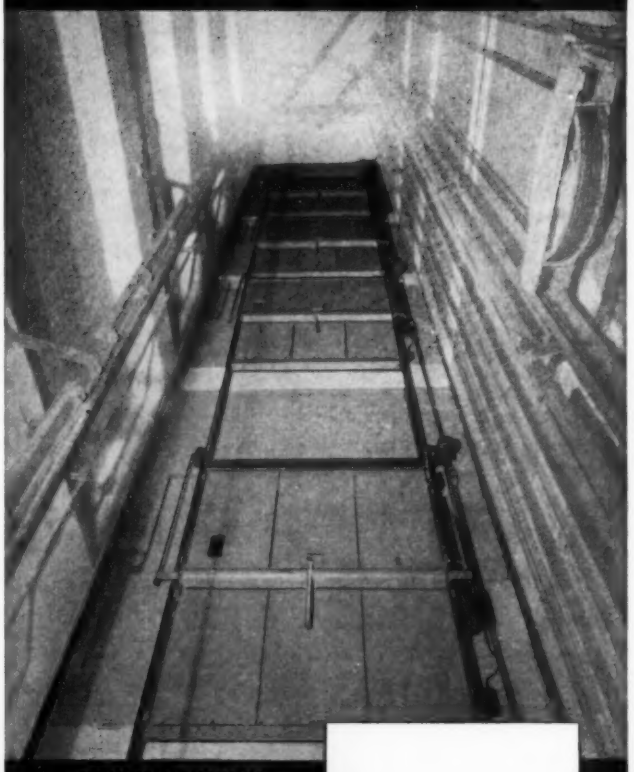

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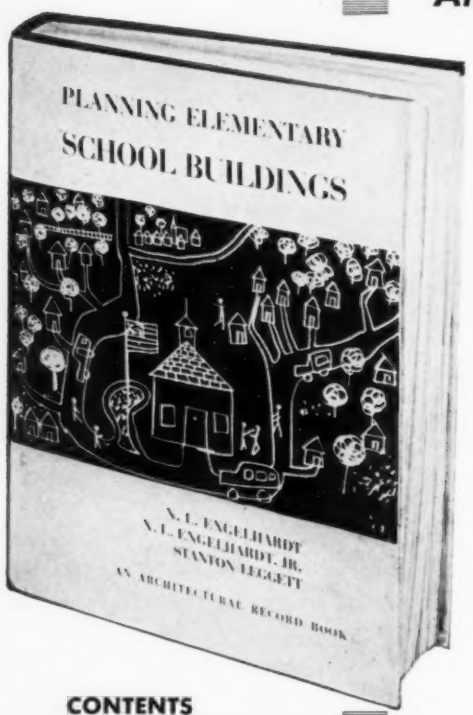

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The design of an elementary school building today calls for a degree of planning and preparation unknown a generation ago. No longer is it sufficient to provide for the traditional 3 R's curriculum and little else.

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—explains the philosophy, the goals, and the terminology of modern elementary education
—illustrates the daily activities of classroom, playroom, auditorium, library, and auxiliary areas

Illustrated with some 300 photographs, this book gives you specific planning data on site selection, one-story vs multiple-story design, layout and floor space in classrooms, necessary equipment for classrooms, lunchroom, indoor playroom, library, assembly room, faculty and administrative offices, custodial space—plus, of course, recommended types of heating, ventilating, and air conditioning systems. Special features include case histories of school surveys in typical communities—step-by-step plans for developing a school building program—and complete check-lists of essential equipment, facilities, and services.

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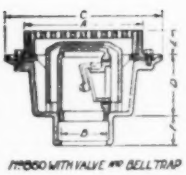

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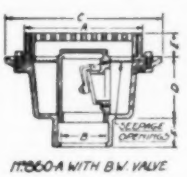

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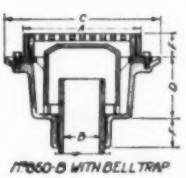

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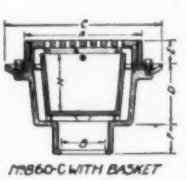

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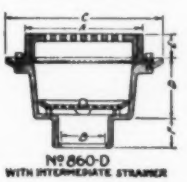

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Type of Fit	Par Infiltration* cfh/ft. of Crack: Weatherstripped	Non-Weatherstripped	Weatherstrip Effectiveness†
Well	14.2	61	4.30
Average	16.7	104	6.24
Poorly	23.8	163	6.85

*At a pressure of 0.20 inch of water (20.4 mph wind velocity).
†Ratio of non-weatherstripped to weatherstripped par-infiltration.

The above facts, plus the complete story on weatherstripping is presented in Bulletin No. 35—"Air Infiltration Through Weatherstripped and Non-Weatherstripped Windows," published by the University of Minnesota, Institute of Technology. The facts showing the economic value of weatherstrip are based on over-all research of climatic conditions in 12 selected cities in the U.S. covering a full range of weather conditions.

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REQUIRED READING

(*Continued from page 48*)

"Catalog Design Progress, 1950." "Design for Point of Sale" is his first venture as sole author of a book.

Besides its editorial content, the book in itself practices what Mr. Sutnar preaches. It is well-designed and has strong visual interest. To quote Mr. Sutnar: "Point-of-Sale Display may best be defined by its two-fold function first to attract attention and to arouse buyer interest at that point where a product is sold; second to convert that interest into on-the-spot buying action. . . . The point-of-sale display has extraordinary potentials, but specific planning and design requirements are of utmost importance."

The book consists of three main parts. The first evaluates the general aspects of point-of-sale design; the second illustrates specific means available today for creating visual interest. Contributions made expressly for this book by outstanding artists, designers and architects comprise its last part. Included among these contributors are: A. F. Arnold, Lester Beall, Gyorgy Kepes, George Nelson, Antonin Raymond, L. L. Rado and Bradbury Thompson. M. P. P.

BUILDER FOR DEMOCRACY

Robert Moses, Builder for Democracy. By Cleveland Rodgers. Introduction by H. V. Kaltenborn. Henry Holt and Company. (383 Madison Ave., New York, 17, N. Y.) 1952. 5¾ by 8½ in. 356 pp., illus. $6.00.

"The Story of Robert Moses," writes H. V. Kaltenborn, "is the story of the progress of decent government in New York State and New York City." Dynamic, courageous, thoroughly self-confident and often stubborn, Moses to many is an enigma; but that part of him which is the driving force behind the Triborough Bridge, the gigantic recreation area of Jones Beach, the little carousel in Central Park, is scarcely enigmatic. Moses' life has been spent in public service almost wholly without financial recompense while his name appears on none of the works for which he is responsible; his boundless energy seems to spring from the singular desire to merge theory and practice in government — and get things done. Good government lies, after all, not only in plans but accomplishments. And few have accomplished as much for New York as Robert Moses.

The story of the achievements born of this dominating drive is the one

(*Continued on page 358*)

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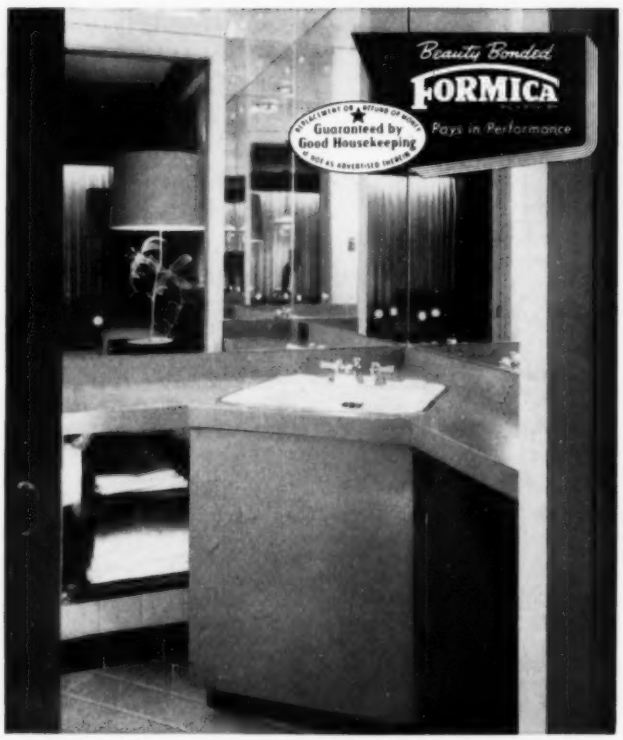

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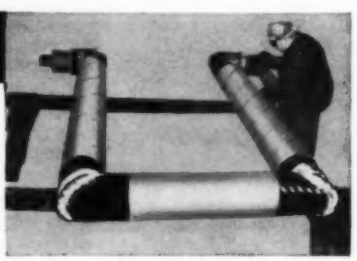

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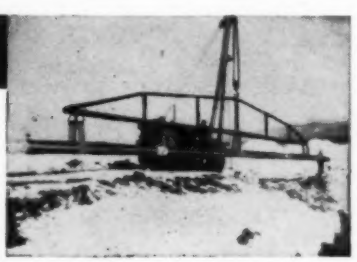

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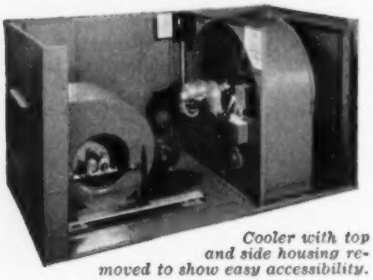

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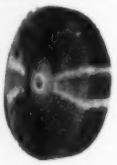

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REQUIRED READING

(*Continued from page 354*)

Cleveland Rodgers tells. It is a factual biography with but a single chapter devoted to the formative years — a New Haven-New York childhood, early mastery of self, Yale, Oxford and Columbia with a doctoral dissertation on the Civil Service of Great Britain — the foundation for public service. The second chapter begins the story of the public servant carried from then on by sheer force of achievement.

"We are going," Moses has stated, "through a period of political and economic readjustment in this country in the course of which we shall at least bridge, and perhaps fill the gap between theory and practice. The thinker and the doer each has his contribution to make in this task of human engineering." It is the "league of long-haired planners" who have received much Moses criticism — "the ivory-tower lads who would tear the community to pieces and rebuild it nearer the heart's desire." Rather than more vision, skill or knowledge, what is needed, he believes, is "the courage to get things done, the insistence upon performance as against promises; achievements as against slogans."

Such ideas inevitably court criticism; thus the series of accomplishments is punctuated by controversy. Excerpts included of Moses' writing and replies are both provocative and refreshing. The Moses-Wright controversy now of some years duration is especially stimulating and enjoyable. Although Frank Lloyd Wright is a distant relative of Mrs. Robert Moses, the two men did not meet until both were famous, and then disagreed at once. Moses, after listening to Wright, pointed to a bronze medal presented him by the Society of Moles: "See, I am a mole. You, a Skylark." The mole and the skylark have disagreed in and out of print ever since to the fast interest of their followers. But, in Wright's words, "The skylarks need the moles or their skyhooks won't work."

No matter how loudly Moses' critics might condemn him, few would question his sincerity. His relentless pursuit of ideas, often manifested in temperamental outbursts at the risk of personal popularity — even his occasional mistakes of judgment — can be explained, if not justified, by the intense devotion to public service from which they spring.

Admirers of Moses undoubtedly will

(*Continued on page 362*)

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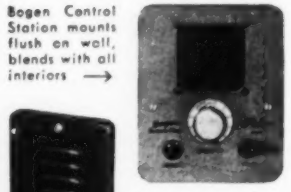

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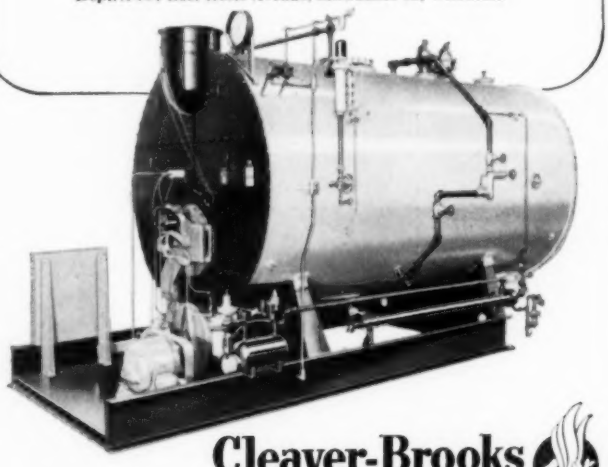

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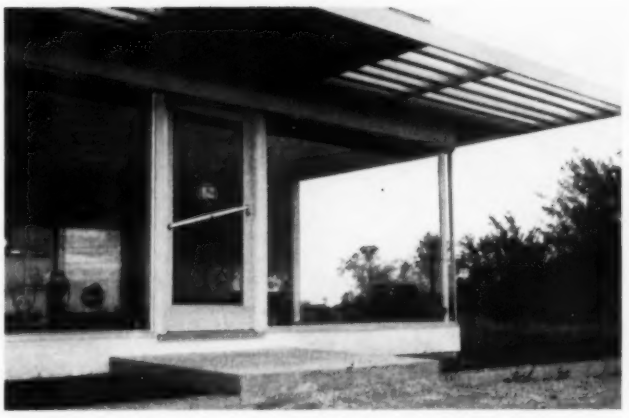

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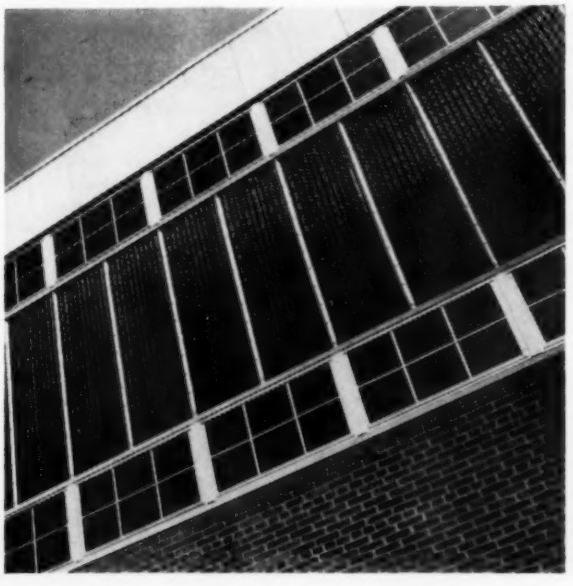

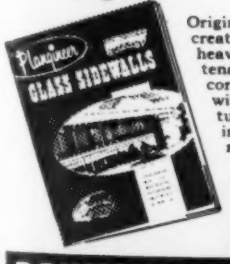

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REQUIRED READING

(*Continued from page 358*)

acclaim Rogers' work; critics probably will admit its fairness. A well-told, thoroughly absorbing story, impregnated with the very energy and power that is its subject, it gives the public a vivid picture of one of the most controversial figures of the day — a picture that well substantiates Herbert Hoover's statement: "There has never been a more constructive official in the Government. His vision, public devotion and accomplishments have no equal that I know of." E. B.

BOOKS RECEIVED

An Approach to Urban Planning. Edited by Gerald Breese and Dorothy E. Whiteman. Princeton University Press. (Princeton, N. J.) 1953. 5¼ by 7¾ in. 147 pp.

Arquitectura en Colombia. Arquitectura Colonial 1538–1810. Arquitectura Contemporanea en Cinco Años 1946–1951. By Jorge Arango and Carlos Martinez. Talleres Litorgrafia Colombia (Bogota, Colombia) 1951. 8½ by 11 in. 127 pp., illus.

Furniture and Equipment for Junior High Schools. By Engelhardt, Engelhardt and Leggett, Educational Consultants (300 Park Ave., New York 22, N. Y.) 1952. 8½ by 11 in. 179 pp., illus.

High Paddington. By Sergei Kadleigh. Iliffe & Sons., Ltd. (London, England) 1952. 8½ by 11½ in. 40 pp., illus.

Idea 53. International Design Annual. Edited by Gerd Hatje. Wittenborn, Schultz, Inc. (New York 22, N. Y.) 1952. 9 by 12 in. 129 pp., illus.

Oneonta, New York — An Analysis of School Building Needs. By Engelhardt, Engelhardt and Leggett, Educational Consultants (300 Park Ave., New York 22, N. Y.) 1952. 8½ by 11 in. 77 pp., illus.

Physical Planning in Israel. By Arieh Sharon. Government Printing Press and Survey of Israel Press. 8½ by 11½ in., illus.

Plastering Skill and Practice. By Felicien Van De Branden and Mark Knowles. American Technical Society. (Chicago, Ill.) 1953. 5½ by 8½ in. 298 pp., illus.

Speaking of Liturgical Architecture. By H. A. Reinold. Liturgical Programs, University of Notre Dame. (Notre Dame, Ind.) 1952. 6¾ by 9½ in. 32 pp., illus.

Tabiques. By R. de la Joya Castro and S. Albiñana Pifarre. Instituto Tecñico de la Construccion y del Cemento (Madrid, Spain) 1951. 8 by 9¾ in. 187 pp., illus.

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A Theory of Architecture. By Victor Hammer. Wittenborn, Schultz, Inc. (38 E. 57th St., New York, N. Y.) 1952. 5 by 6½ in. 94 pp.

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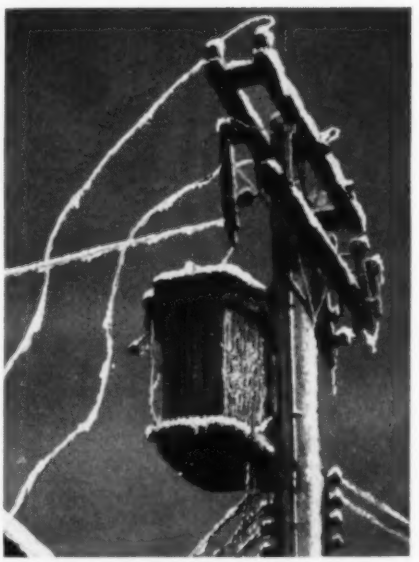

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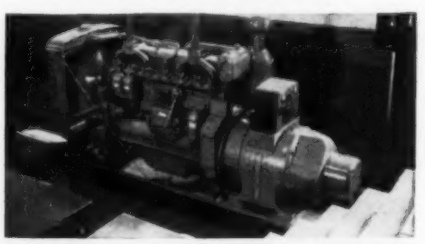

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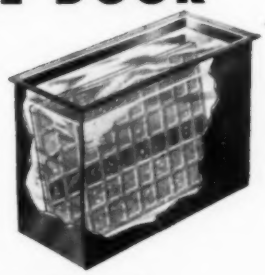

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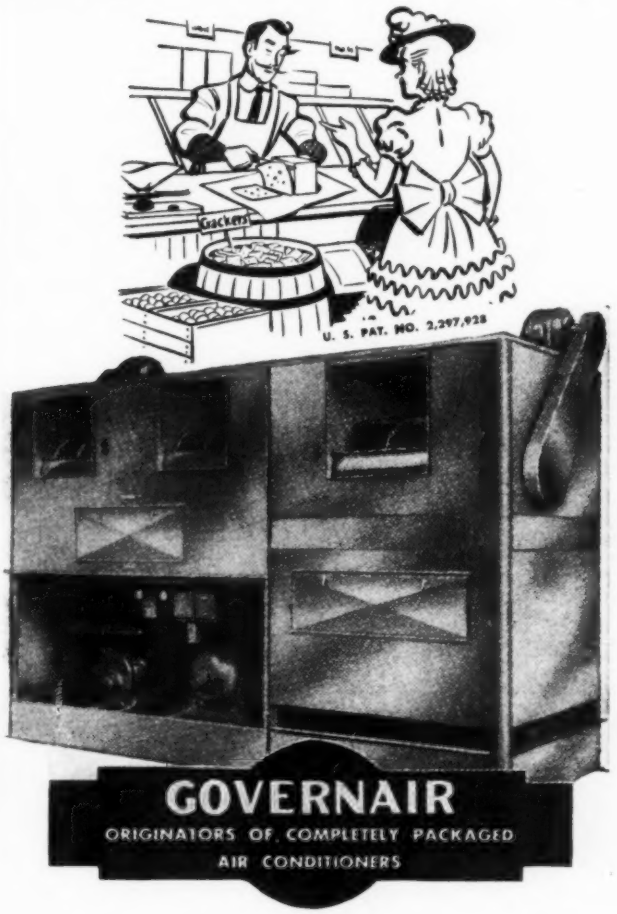

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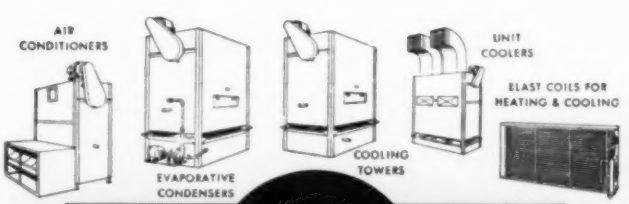

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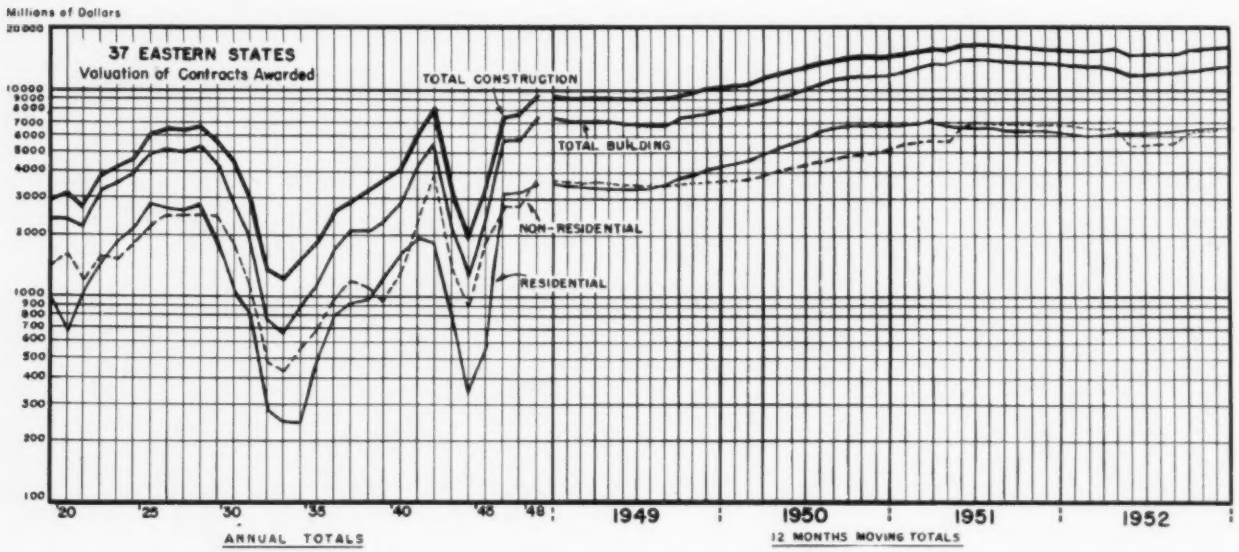

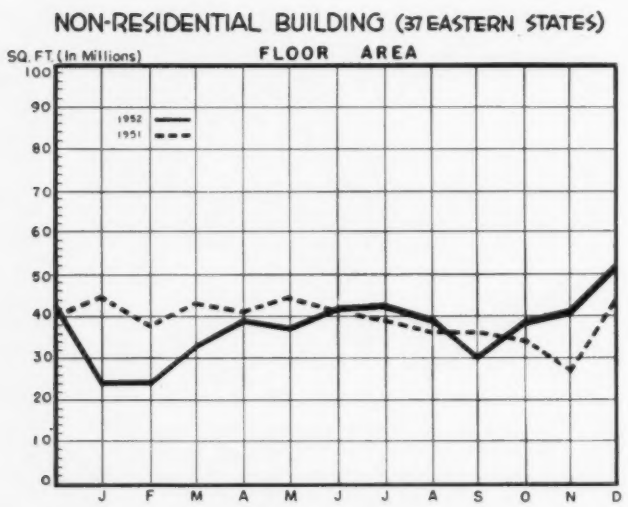

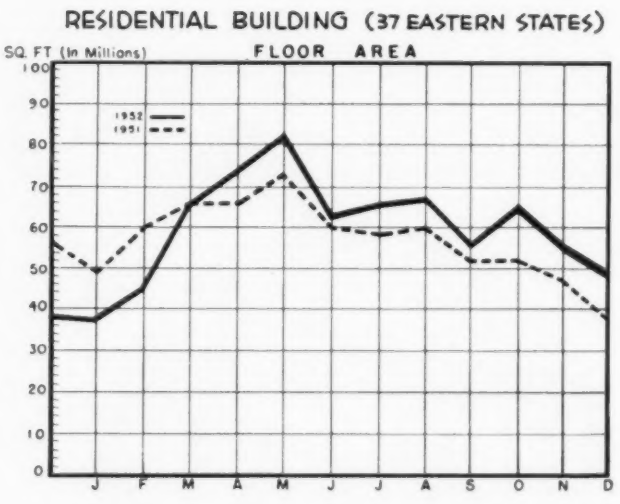

Hospital & Institutional Construction 1939–52
(37 Eastern States)
(Floor Area—Thousands of square feet)

Year	Annual Total	Monthly Average	1952	Monthly Total
1939	11,593	966	Jan.	1673
1940	14,401	1200	Feb.	1097
1941	15,394	1283	Mar.	2032
1942	34,083	2840	Apr.	2763
1943	19,947	1662	May	2910
1944	7,637	636	June	2155
1945	11,331	944	July	3448
1946	15,245	1270	Aug.	2265
1947	19,915	1660	Sept.	593
1948	35,487	2957	Oct.	1760
1949	42,076	3506	Nov.	3382
1950	44,526	3710	Dec.	
1951	37,881	3157	Total	

BUILDING VOLUME CONTINUES HIGH

Architects, engineers and the clients they serve are continuing to benefit by a sustained volume of new construction. Increased supplies of steel, aluminum and to some extent copper, are relieving shortages while relaxation of controls has released many projects previously held up. This is especially true of social and recreational, commercial and miscellaneous nonresidential structures. School building continued as a major type, while new studies showed a critical shortage of school facilities. Education Commissioner Earl J. McGrath reported a need for 325,000 instruction rooms this year at a cost of $10.7 billion. A similar need for expanded health facilities was revealed by the President's Commission: a deficit of 230,000 new general hospital beds and 330,000 mental hospital beds was reported. Hospital building in 1953 is expected to exceed the volume of 1952. A record of hospital and institutional construction since 1939 is given in the table at left. See also Building Types Study on Hospitals, pp. 165–188.